PHOTOFACT* FOLDER SET

*TRADE MARK

NO. 90

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The PHOTOFACT Servicer

March 15, 1950 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Vol. 9, Nos. 89 & 90

FIELD EXPERIENCES

We are so far behind on publishing Field Experiences that we've decided to devote this entire issue of the Servicer to them. Here you are.

For every service "Field Experience" published, we issue a certificate good for one PHOTOFACT Folder Set. Awards are issued at the time of publication. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or for the results obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

SPARTON Chassis 8L10
Models 141A, 4970-71-72

Complaint: Customer complained that FM band was dead.

Cause: Shorted bypass capacitor (.002 MFD.) in plate circuit of ratio detector driver stage. Causes 4.7K ohm dropping resistor to burn out.

Remedy: Replace both capacitor and resistor.

T. L. Munsch
Manager Service Department
P. J. Aldrich Stores
Perry, Michigan

* * *

ADMIRAL Model 9B16
Photofact Set No. 49, Folder No. 2

Complaint: Bad distortion on 78RPM phono pickup section. Long playing section O. K. Radio and FM function satisfactorily.

Cause and Remedy: Item No. 19, .2 MFD bypass condenser found open. Replaced and pickup operated perfectly. This hint saved me time twice.

Ted Stewart
1617 Parker Street
Berkeley, Calif.

CHEVROLET Model 986240
Photofact Set No. 75, Folder No. 5

Complaint: Set would cut out after being on for a while or would sometimes fail to come on at all.

Cause and Remedy: The two grounded leads of the oscillator coil, Item No. 15, are twisted together and soldered to a common lug. One or both of these leads were not making a good ground. Clean and resolder to common lug. We found this trouble on two sets in new cars.

Bill James
Magnolia Radio Service
Williston, Florida

* * *

EMERSON Model 561 - Chassis 12001B
Photofact Set No. 63, Folder No. 7

I happen to sell the Emerson line and I have had two of the above sets with the same complaint. I always check new sets and align them if necessary. Two of the above models came through with a condition that sounded like an alignment job - squeals and oscillation - but aligning the sets was impossible.

A thorough check of the set revealed that the mixer cathode resistor R2 was of the wrong value. The resistor found was a 150 ohm, and the correct one should be 680 ohm. After replacing this resistor with the correct one, alignment was easy.

O. H. Bauman, Jr.
Wabeno, Wisconsin

* * *

ZENITH Chassis 28F23
Photofact Set No. 74, Folder No. 13

Trouble: Damper tube 5V4 plates heated red hot.

Cause: Filament winding (Z) shorted to one side of the primary of the filament transformer. Worked O. K. in shop as antenna mast was not

grounded. Customer had folded dipole with normal grounded mast.

Note: I made two trips to the customer's house with this set before I thought of the antenna completing some kind of a circuit to the ac line. The antenna made quite an arc at the terminals as it was disconnected while the set was turned on.

Paul W. Matlack
313 Clements Bridge Road
Barrington, N. J.

FIRESTONE Model 4A15
Photofact Set No. 36, Folder No. 7

Complaint: Loss of power. I have had several similar cases on this same model. The phono pre-amplifier in this radio uses a 6SJ7 as a triode stage. The manufacturer's specifications list the plate voltage at 24Vdc, and the cathode bias at 7.5 volts. The correct plate voltage is 135 to 150 volts dc and the bias should be 5 volts.

Cause: The cathode resistor in this pre-amplifier frequently changes value and causes poor tone quality and the reproduction of the record sounds distorted.

Remedy: This condition can be eliminated by using a 1000 ohm resistor from cathode to ground in place of the 1500 ohm resistor recommended by the manufacturers. This method has worked several times for me when the complaint was distorted reproduction of records.

Charles W. Niedermyer
1104 lst Street
Moundsville, W. Va.

* * *

CROSLEY Models 9-407,
9-407M-1, 9-407M-2
Photofact Set No. 66, Folder No. 6

Complaint: Sound channel drifts during warm-up.

Remedy: Although this has been a headache for the serviceman, satisfactory results may be obtained on these models, by replacing the 6J6 oscillator tube in the tuner with a 6AB4 tube.

* * *

RCA Models 630TS, 630TCS, 8TS30
Photofact Set No. 54, Folder No. 18

Complaint: No sound and no picture. No high voltage.

Cause: You have probably guessed that the trouble lies somewhere in the low voltage supply.

Remedy: Much valuable time may be saved by taking a resistance reading at the output of the low voltage rectifier, 5U4. If a short is indicated, the 1st sync amplifier plate recoupling capacitor (.1-400V, C72) should be checked first. At times this capacitor may be found shorted.

The lst sync amplifier plate resistor R82 (4700 ohms, 1 watt) should also be checked at this time for correct value. This value should be remembered; for at times this resistor may be found discolored.

* * *

ADMIRAL Chassis 30A1
Photofact Set No. 57, Folder No. 2

Complaint: No control of brightness.

Cause: The cause of the trouble in this case was found to be the picture tube. Taking a resistance reading at the base of the picture tube, a short was indicated from pins 11 to 12, (cathode to filament).

Remedy: Replacement of tube cleared the trouble.

However, this particular tube could again be used in sets such as RCA, Transvision, Sightmaster, etc., where cathode and filament are connected together externally. Care should be taken to see that one leg of the filament is connected to 6.3 volts, and not to ground. For example, if this tube were to be used in an RCA set, where pins 11 and 1 are connected together externally at the picture tube female socket, the wires going to pins 1 and 12 must be interchanged to provide 6.3 volts for the cathode ray tube. If short in tube was from pins 11 to 1, no change at socket would be necessary when tube is used with this particular set. This tube, however, cannot be used in TV sets where cathode and filament are not connected together externally. Jumper from pins 11 to 1, must be removed, and connected from pins 11 to 12.

Editor's Note: All three above experiences were contributed by:

Ross Rondinelli
Suburban Radio Service
New Rochelle, N. Y.

SPARTON Model 10BW76PA
Chassis 10-76PA
Photofact Set No. 15, Folder No. 34

Complaint: Weak distorted signal followed by a completely dead output amplifier.

Cause: A check showed the 6V6GT output amplifier without cathode voltage and a further check showed continuity in the cathode circuit. Voltages on all other elements of the tube were in order, yet the tube did not seem to be drawing current. It was found that the 500K ohm control (Item No. 61) across the control grid of this stage showed continuity only at certain positions.

Remedy: Replacement of this control brought the set to satisfactory operation. The placement of this control in this particular circuit did not show up defective under the usual checks. The resistance checks shown on your diagram showed the trouble immediately.

Byron A. Neal
12 W. Wellsboro Street
Mansfield, Penn.

* * *

ZENITH Model 24G20

Complaint: Wide white streak on right side of picture.

Remedy: Replacing the screen bypass and coupling capacitor to 6AC7 (final video amplifier) corrected the trouble.

R. E. Coleman
Supreme Radio & Television
132 S. Detroit Street
Bellefontaine, Ohio

* * *

Stripper for Twinlead

Ideal Industries of Sycamore, Illinois, make an excellent mechanical stripper for twinlead. Lacking one of these, slide the flat surface of a hot soldering iron tip along the outer edges of the twinlead. Then poke the sharp tip of the iron between the exposed wire and the insulation. The wire pops out, stripped without nicks or mutilation. Snip off the insulation (left between the skinned wires) with your diagonals.

This method works well for attaching twinlead to lightning arrestors where one side is stripped. You may slide the iron along the outer edge of the wire, also along the top and bottom so that the wire can be separated from the insulation by thumbnail inserted between them.

Gib Aulabaugh
1133 Wild Street
Sycamore, Illinois

* * *

G. I. Record Changer No. 205
Photofact Set No. 10, and Servicer No. 72

With reference to the Photofact Servicer, Volume 8, Nos. 71 & 72, dated October 15, 1949, regarding the above changer:

In most cases it is not necessary to remove the cam assembly. Turn the cam where the defect is, out toward the pickup cartridge and use a platinum point file such as used by mechanics for filing points. This will save a lot of time and usually works satisfactorily.

H. Arnold Smith
Monon, Indiana

* * *

EMERSON Portable Model 70B1

Complaint: Low sensitivity.

Cause: Partial short of lead from secondary of second IF to the shield. This line goes to the volume control above the chassis.

Remedy: Replace shielded lead.

A. W. Arnold
Desert Hot Springs, Calif.

* * *

Portables - and Varying Voltages

Here is a suggestion for other servicemen who have not used the idea. Portables are sometimes quite critical on line voltage. Many apartments, auto courts, and homes have varying line voltages, which cause the sets to cut off. I use a 3-inch ac voltmeter, with a 25 watt power resistor in one side, having both mounted in a small case with a cord and plug to 117 volt ac source, and a socket in the front panel in which to plug the set. In this way I can see at what voltage the set cuts off. This can be done to show the customer if his trouble is in the line voltage.

S. Meeker
331 Sierra Street
Reno, Nevada

JEWEL Model 300
Photofact Set No. 23, Folder No. 11

Complaint: Loud ac hum that increased when volume control was moved counter-clockwise toward switch.

Cause: Volume control and switch are one assembly and ac line from switch to ground was soldered to switch case.

About 1/25 ohm resistance showed between switch and chassis. This did not stop radio from working but created a loud hum.

Remedy: Solder wire from switch to chassis.

J. W. Peters
12438 Roseberg Ave., South
Seattle 88, Washington

* * *

ALL TRANSVISION Receivers
10-inch, 12-inch, 15-inch
Either Standard or deluxe Models

Complaint: Picture distorts and tears out in sections on strong signal.

Cause: The trouble can be traced to the first video and sound IF tube which is a 6AC7 (socket X-13) overloading and distorting the sync pulses.

Remedy: Remove 100 ohm resistor from cathode of third pix IF tube 6AC7 (socket X-11) and discard it. Remove the 150 ohm resistor from the cathode of the first video and sound IF tube and place this resistor in the cathode of the third pix IF tube. Do not run this resistor back to the center terminal of the contrast control, but ground it instead. Now take the lead that was connected to the third pix IF tube cathode (through the 100 ohm resistor) and sound IF tube.

This effectively allows the contrast control pot to control the first and second video IF tubes instead of the second and third tubes. The trouble will be entirely cleared up and the picture will not tear out unless the contrast control is turned too high.

TV RECEIVERS Which Use A
Flyback High Voltage Power Supply

Insert a 1/4 amp., 250 volt fuse between cathode of damper tube and horizontal linearity coil to prevent flyback transformer from burning up, and in some cases even catching fire, in the event of failure of the 6BG6G.

Editor's Note. This is now being done by almost every manufacturer. It is wise to add the fuse to older sets when they are in the shop for service, since the fuse is fine protection for the more expensive components it protects.

Both above experiences were submitted by:

Henry W. Finch
441 Orchard Street
Englewood, N. J.

* * *

HUDSON, Fact. No. 6MH889
Photofact Set No. 39, Folder No. 9

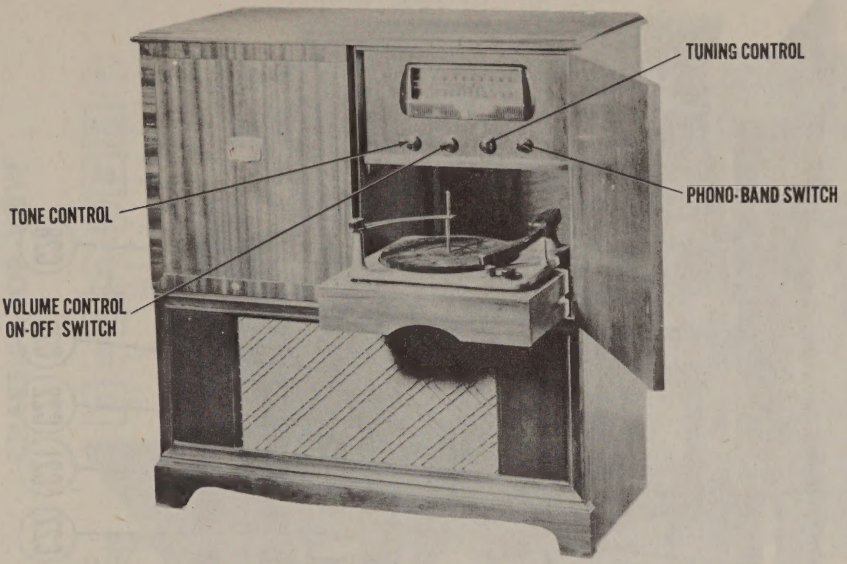
Complaint: Tuning mechanism does not work.

Cause: Upon inspection the teeth on the clutch assembly were sheared. The inside drum was frozen on the shaft. The outside drum is pressed on.

Remedy: Drill a hole in the case in line with the shaft. Place a screwdriver between the two drums and, using a center punch or better yet a drift pin punch, lightly tap the punch and at the same time place pressure on the screwdriver until the two drums come apart. Drill out the rivet holding the push button arm, taking care not to drill any more than necessary, as the rivet may be used again by simply soldering it when the new friction clutch assembly is placed in the set. Remove both drums and spring.

Upon replacing with new units, make sure that the inside drum is free on the shaft, and lubricate. Do not get any lubricant on the face of the inside drum or on the rubber ring. The replacement friction clutch assembly may be ordered from the Zenith factory and the new assembly uses two screws to secure the outside drum on the shaft. The raised grooves on the shaft holding the original drum may be removed by using a file and being careful not to remove anything but the raised grooves. Lubricate shaft and inside of friction drum (inside drum). Place spring on the shaft and follow with the drum. Assemble lever that works the push-button and replace rivet, soldering the rivet in place. Place outside drum on the shaft and allow enough spacing between units so that the push-buttons will free the two drums for proper operation. Tighten the two screws and the repair job is complete.

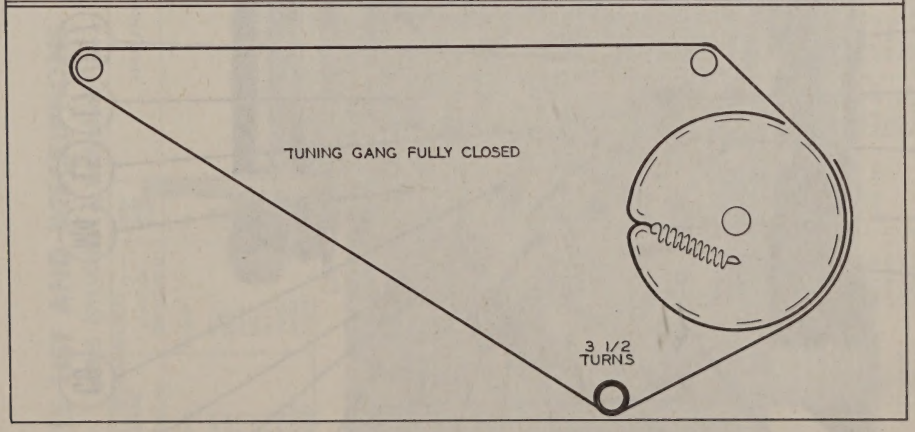
William H. Bargainer
c/o Huff's Radio Service
Pollok, Texas



AIRLINE
MODELS 94WG-2748A, 94WG-2749A

AIRLINE MODEL 94WG-2748A

TRADE NAME	Airline, Models 94WG-2748A, 94WG-2749A		
SUPPLIER	Montgomery Ward and Co., 619 Chicago Ave., Chicago, Illinois		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (EIGHT)	Types 12AT7 FM RF Amp.-FM Mixer, 6BE6 FM Osc.-AM Converter, 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AV6 DET-AVC-AF, 6V6GT Power Output, 6X5GT or 5Y3GT Rectifier		
POWER SUPPLY	105-125 Volts AC	RATING	Model 94WG-2748A .34 Amp. at 117 Volts AC Model 94WG-2749A .58 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FREQ. MOD.	88-108MC



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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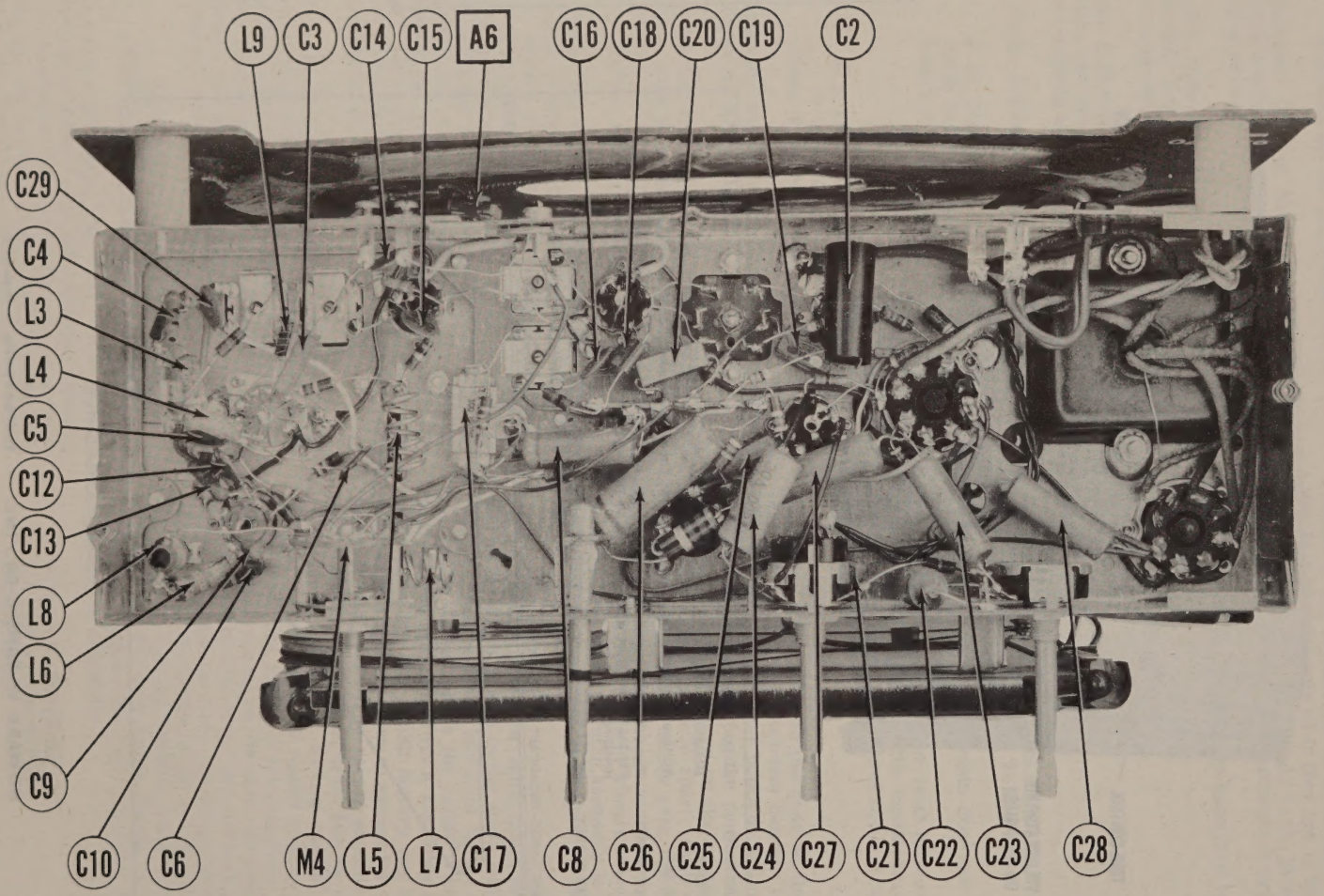
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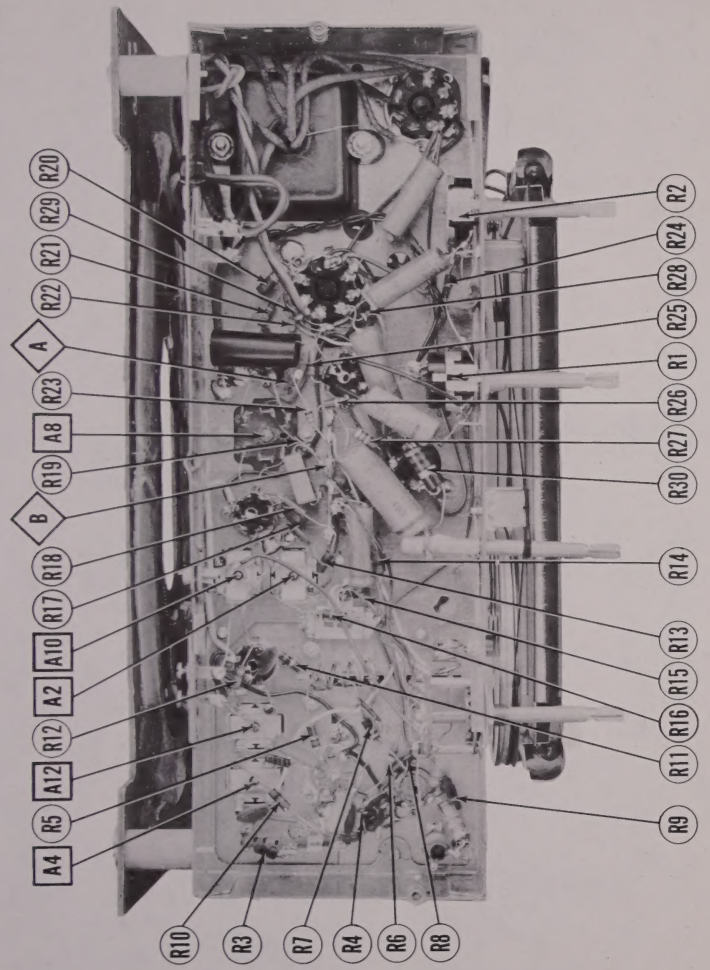

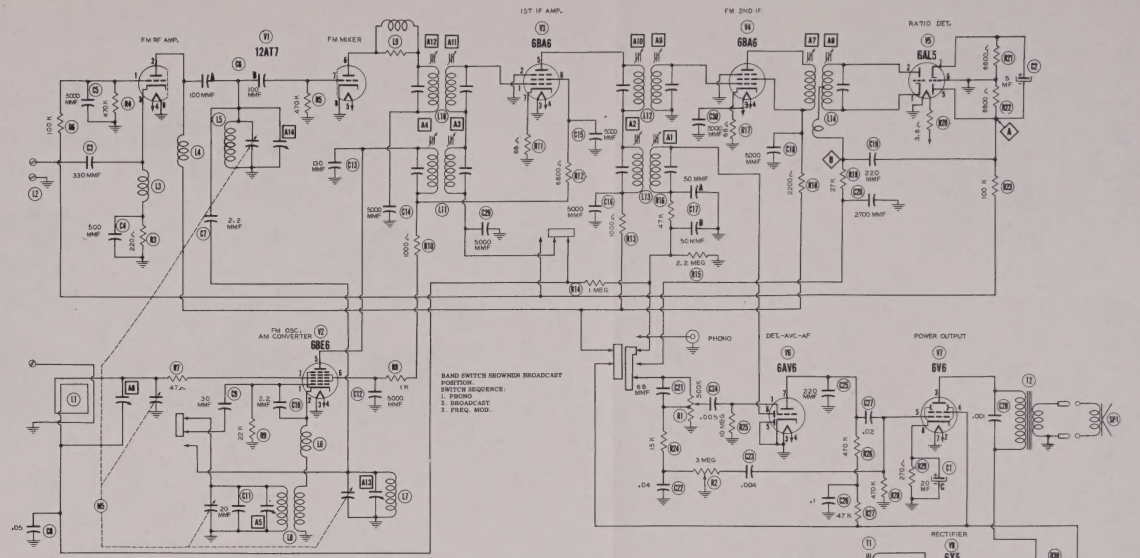

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12AT7	110VDC	-.1VDC	.9VDC	0V.	0V.	107VDC	-.5VDC	0V.	6.3VAC
	V2A	6BE6	5-4.7VDC	0V.	0V.	6.3VAC	107VDC	107VDC	-.8VDC		
†	V2B	6BE6	5-1VDC	0V.	0V.	6.3VAC	107VDC	107VDC	-1VDC		
	V3	6BA6	-.4VDC	0V.	0V.	6.3VAC	107VDC	81VDC	.7VDC		
	V4	6BA6	0V.	0V.	0V.	6.3VAC	85VDC	85VDC	.9VDC		
	V5	6AL5	0V.	0V.	0V.	6.3VAC	-.1VDC	0V.	.1VDC		
	V6	6AV6	-.1VDC	0V.	0V.	6.3VAC	0V.	-1VDC	51VDC		
	V7	6V6GT	0V.	6.3VAC	146VDC	118VDC	0V.	0V.	0V.	5.2VDC	
	V8A	5X5GT	0V.	0V.	153VAC	0V.	153VAC	0V.	6.3VAC	153VDC	
	V8B	5Y3GT	0V.	370VDC	0V.	360VAC	0V.	360VAC	0V.	370VDC	

‡ TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN IN FM POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	12AT7	1820Ω	150KΩ	220Ω	0Ω	0Ω	11.8KΩ	470KΩ	0Ω	.1Ω
	V2A	6BE6	22KΩ	1Ω	0Ω	.1Ω	11.8KΩ	11.8KΩ	1.5 Meg.		
†	V2B	6BE6	22KΩ	1Ω	0Ω	.1Ω	11.8KΩ	11.8KΩ	1.5 Meg.		
	V3	6BA6	1.5 Meg.	0Ω	0Ω	.1Ω	11.8KΩ	19.6KΩ	68Ω		
	V4	6BA6	1Ω	0Ω	0Ω	.1Ω	13KΩ	13KΩ	68Ω		
	V5	6AL5	350KΩ	350KΩ	0Ω	.1Ω	8.8KΩ	0Ω	6.8KΩ		
	V6	6AV6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	330KΩ	1500KΩ		
	V7	6V6GT	Inf.	.1Ω	1420Ω	1820Ω	470KΩ	.6Ω	0Ω	270Ω	
	V8A	5X5GT	Inf.	0Ω	130Ω	Inf.	130Ω	Inf.	.1Ω	50KΩ	
	V8B	5Y3GT	Inf.	30KΩ	Inf.	95Ω	Inf.	100Ω	Inf.	30KΩ	

† MEASURED FROM PIN 8 OF V8.

IF = 455 KC AM

IF = 10.7 MC FM

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be mounted in same relative position to chassis as when receiver is in cabinet. Keep output cable as short as possible. Use an insulated alignment screwdriver for adjusting. Volume control should be set higher than necessary to obtain an output reading.

AM ALIGNMENT

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	DIAL SETTING	OUTPUT METER CONNECT	REMARKS
1.	DUMMY ANTENNA .1MFD	SIGNAL GENERATOR COUPLING 1500 OHMS	1500KC AM	Tune for max. output	Across voice coil	Adjust for maximum output.
2.	.1MFD	1500KC	"	"	"	"
3.	50MMF	600KC	"	"	"	"
4.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 0 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
5.	2500MMF	"	"	"	"	"
6.	2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
7.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
8.	-	-	-	-	-	-

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

The AM IF transformers should be aligned before attempting FM IF Alignment.

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	DIAL SETTING	OUTPUT METER CONNECT	REMARKS
1.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	1500KC AM	Tune for max. output	Across voice coil	Adjust for maximum output.
2.	2500MMF	455KC	"	"	"	"
3.	2500MMF	"	"	"	"	Adjust for maximum output.
4.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 0 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
5.	2500MMF	"	"	"	"	"
6.	2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
7.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	ADJUST A7 Adjust for maximum deflection.
8.	-	-	-	-	-	-

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 455KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
1.	DUMMY ANTENNA .1MFD	SIGNAL GENERATOR COUPLING .1MFD	1500KC AM	Tune for max. output	VTVM Across voice coil	A8 A9 A10 A11 A12	Adjust for maximum output.
2.	.1MFD	455KC (400 ~ Mod.)	"	"	"	"	"
3.	50MMF	455KC	"	"	"	"	"
4.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 0 Deg. (FM)	RADIO DIAL SETTING Point of non-interference	Vert. Amp. to Point A8 Common to chassis.	A8 A9 A10 A11 A12	Disconnect stabilizer capacitor. Adjust A8 so 10.7MC occurs at center of crossover lines as per Fig 1. Adjust A9 A10 A11 A12 for best symmetry and linearity of crossover lines.
5.	2500MMF	"	"	"	"	"	"
6.	2500MMF	SIGNAL GENERATOR COUPLING 2500MMF (dual 1800MMF)	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Point of non-interference	Vert. Amp. to Point A8 Common to chassis.	A8 A9 A10 A11 A12	"
7.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF (dual 1800MMF)	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Point of non-interference	Vert. Amp. to Point A8 Common to chassis.	A8 A9 A10 A11 A12	"
8.	-	-	-	-	-	-	-

FM ALIGNMENT

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
1.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	1500KC AM	Tune for max. output	VTVM DC Probe to Point A7 Common to chassis.	A7	Adjust for maximum deflection.
2.	2500MMF	455KC	"	"	"	"	"
3.	2500MMF	"	"	"	"	"	"
4.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 0 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	A7	Adjust for zero reading. A reading will be obtained on either side of the correct setting.
5.	2500MMF	"	"	"	"	"	"
6.	2500MMF	SIGNAL GENERATOR COUPLING 2500MMF (dual 1800MMF)	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Point of non-interference	DC Probe to Point A8 Common to chassis.	A8 A9 A10 A11 A12	Adjust for maximum deflection.
7.	DUMMY ANTENNA 2500MMF	SIGNAL GENERATOR COUPLING 2500MMF	BAND SWITCH POS. (Gang at 180 Deg. (FM)	RADIO DIAL SETTING Tuning gang fully open	DC Probe to Point A7 Common to chassis.	A7	Adjust for maximum deflection.
8.	-	-	-	-	-	-	-

DISASSEMBLY INSTRUCTIONS MODEL 94WG-2748A

1. Remove 4 pcs. knobs, tip and control knobs.
2. Remove 4 pcs. phillips head screws holding escutcheon to chassis.
3. Remove speaker leads from speaker. Remove speaker leads.
4. Remove 2 phillips head screws holding top of loop antenna.
5. Remove three 1/4 inch hex head bolts holding chassis. Remove chassis.
6. Remove three 1/4 inch hex head bolts holding speaker. Remove speaker.

FIG 1

FIG 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp.-FM Mixer	12AT7	12AT7	9A	
V2	FM Osc.-AM Converter	6BE6	6BE6	7CH	
V3	1st IF Amp.	6BA6	6BA6	7BK	
V4	FM 2nd IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Det.	6AL5	6AL5	6BT	
V6	DET.-AVC-AF	6AV6	6AV6	7BT	
V7	Power Output	6V6GT	6V6GT	7AC	
V8A	Rectifier	6X5GT	6X5GT	6S	Model 94WG-2748A
B	Rectifier	5Y3GT	5Y3GT	5T	Model 94WG-2749A

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	300	45X360 *	AF88J4A	UP4445C		EL-432	▲ Filter
B	40	150						■ Filter
D	20	25						▲ Output Cathode Bypass
C1A	40	350	45X359 †	AF6H84G4A	UP44235C		EL-432	▲ Filter
B	40	350						■ Filter
C	20	350						▲ Filter
D	20	25						Output Cath. Bypass
C2	5	100	45X361	PRS150/4	BR415		UT-41	Stabilizing Cap.
C3	330	500	47X470	1468-00035	5W5T3	GP2K-330	1FM-335	Antenna Coupling
C4	500		47X508	GP500K	5W5T5	GP2K-500	1FM-35	FM RF Cathode Bypass
C5	5000		47X507	BPD-5	1D5D5	81I-005	29C1	AVC Filter
C6A	100		76X4	GP100M	5W5T1	GP1K-100	1FM-31	RF Coupling
B	100			GP100M	5W5T1	GP1K-100	1FM-31	RF Coupling
C7	2.2		47X557					Osc. Coupling
C8	.05	200	B66503	P288-05	PTE4S5		TM-15	AVC Filter
C9	30		47X556	GP30K	5W5Q3	GP1K-33	MS-43	Osc. Grid Cap.
C10	2.2		47X557					Osc. Feedback
C11	20		47X516	CN20JN600	9R5Q2	N600K-20	MS-42	Fixed Trimmer
C12	5000		47X507	BPD-5	1D5D5	81I-005	29C1	Osc. Anode Bypass
C13	130		47X559					Fixed Trimmer
C14	5000		47X507	BPD-5	1D5D5	81I-005	29C1	Conv. Plate Decoupling
C15	5000		47X507	BPD-5	1D5D5	81I-005	29C1	1st IF Screen Bypass
C16	5000		47X507	BPD-5	1D5D5	81I-005	29C1	1st IF Plate Decoupling
C17A	50		47X112	GP50M	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
B	50			GP50M	5W5Q5	GP1K-50	1FM-45	Diode RF Filter
C18	5000		47X507	BPD-5	1D5D5	81I-005	29C1	2nd IF Decoupling
C19	220	500	47X468	1468-00025	5W5T25	GP2K-220	1FM-325	Diode Load Cap.
C20	2700	500	47X492	1467-0025	1WD25	GP2M-0027	1FM-23	De-emphasis
C21	68	500	47X471	1468-000075	5W5Q7	GP1K-68	1FM-475	Tone Compensation
C22	.04	200	B66403	P288-04	PTE684		TM-14	Tone Compensation
C23	.004	600	B66402	P688-004	PTE6D4		TM-24	Tone Compensation
C24	.005	800	D66502	P688-005	PTE6D5	81I-005	TM-25	Audio Coupling
C25	.220	500	47X468	1468-00025	5W5T25	GP2K-220	1FM-325	AF Amp. Plate Bypass
C26	.1	400	D66104	P488-1	PTE4P1		TM-1	AF Amp. Decoupling
C27	.02	400	D66203	P438-02	PTE4S2		TM-12	Audio Coupling
C28	.001	800	H66802	P1068-001	PTE16D1		TR-21	Output Plate Bypass
C29	5000		47X507	BPD-5	1D5D5	81I-005	29C1	AVC Filter
C30	5000		47X507	BPD-5	1D5D5	81I-005	29C1	2nd IF Filament Bypass-Note

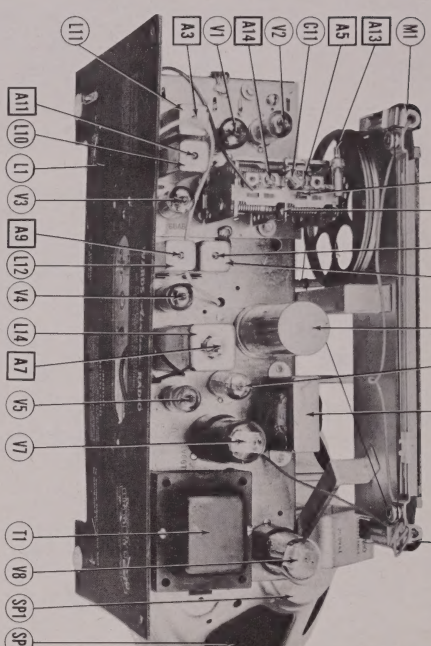
* Used only in model 94WG-2748A.
† Used only in model 94WG-2749A.
Note. Not used in all models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	36X372	QI3-133X	AT-78	Volume control, tapped at 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
C	Switch		Not Req.	78-1	SW-A	Attach to R1A per instructions
R2A	3 Meg.	½	40X285	QI3-140	AM-67-Z	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions

SET 90 FOLDER 1

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
R3	220Ω	½	B84221		FM RF Amp. Cathode
R4	470KΩ	½	B85474	BTS-470K	FM RF Amp. Grid
R5	470KΩ	½	B85474	BTS-470K	FM Mixer Grid
R6	100KΩ	½	B85104	BTS-100K	AVC Network
R7	47Ω	½	B85470		Parasitic Supp.
R8	1000Ω	½	B85102	BTS-1000	Osc. Anode
R9	22KΩ	½	B85223	BTS-22K	Osc. Grid
R10	1000Ω	½	B85102	BTS-1000	Conv. Plate Decoupling
R11	68Ω	½	B84680		1st IF Cathode
R12	6800Ω	½	B84682	BTS-6800	1st IF Screen
R13	1000Ω	½	B85102	BTS-1000	1st IF Decoupling
R14	1 Meg.	½	B85105	BTS-1 Meg.	AVC Network
R15	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Diode Load-See Note 1
R16	47KΩ	½	B85473	BTS-47K	Diode Filter
R17	68Ω	½	B84680		FM 2nd IF Cathode
R18	2200Ω	½	B85222	BTS-2200	FM 2nd IF Decoupling
R19	27KΩ	½	B85273	BTS-27K	De-emphasis
R20	3.8Ω	½	43X233		Ratio Det. Filament Wire Wound
R21	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R22	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R23	100KΩ	½	B85104	BTS-100K	AVC Network
R24	15KΩ	½	B85153	BTS-15K	Tone Compensation
R25	10 Meg.	½	B85106	BTS-10 Meg.	AF Grid
R26	470KΩ	½	B85474	BTS-470K	AF Plate
R27	47KΩ	½	B85473	BTS-47K	AF Plate Decoupling
R28	470KΩ	½	B85474	BTS-470K	Output Grid
R29	270Ω	½	B84271	BW-½-270	Output Cathode
R30	820Ω	2	D84821	BW-2-820	Filter-See Note 2
R31A	1000Ω	4	43X234		Filter-Wire Wound-See Note 3
B	1400Ω	6			Filter-Wire Wound-See Note 3

Note 1. Not used in all models.
Note 2. Not used in model 94WG-2749A.
Note 3. Used in model 94WG-2749A only.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1A	117VAC	330VCT .060ADC	6.3VAC at 3.2A		53X291 *	P-8011 # ‡	P-3048 # ‡	PH-70B #
B	117VAC at .58A	510VCT .087ADC	5VAC at 2A	6.3VAC at 2A	53X290 †	P-3951		

Add series resistor to reduce plate voltage.
‡ Drill new mounting holes.
* Used in model 94WG-2748A.
† Used in model 94WG-2749A.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T2	6.2KΩ	3.5Ω	440Ω	.8Ω	51X134	A-3849	A-3019	RO-13 †	† Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AIRLINE PART No.	VIKING PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.				
SP1A	PM	3.5Ω	12A480 *	12J12	10A31	* Used in model 94WG-2748A
B	PM	3.1Ω	12A490 †	12J12	12A4A	† Used in model 94WG-2749A
	CONE DIA.	V. C. DIA.				
SP2A	9 3/4"	3/4"				
B	11 3/8"	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	
L1	AM Loop Antenna	1Ω		9A2070		
L2	FM Dipole	0Ω		9A2004		
L3	RF Choke	.3Ω		35A9		
L4	RF Choke	3.5Ω		35A8		
L5	FM Ant. Coil	0Ω		9A2066		
L6	RF Choke	2.5Ω		35A5		
L7	FM Osc. Coil	0Ω		9A2067		
L8	AM Osc. Coil	.5Ω	5.1Ω	9A2065	14-1060	
L9	Para. Supp.	0Ω		9A2068		3 1/2 turns on 1000Ω resistor.
L10	1st FM IF	1Ω	1Ω	9A2060		
L11	1st AM IF	13.5Ω	11.5Ω	9A2062	16-6678	
L12	2nd FM IF	1Ω	1Ω	9A2061		
L13	2nd AM IF	12.5Ω	14Ω	9A2063	16-6678	
L14	Ratio Det. Trans.	.2Ω	.2Ω	9A2064		

DIAL LIGHTS

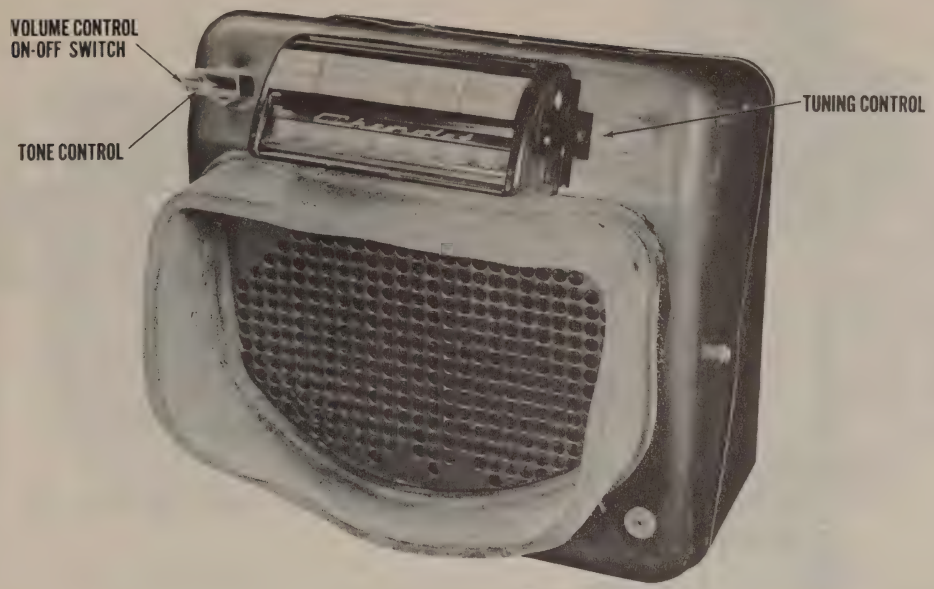
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRLINE PART No.	NOTES
M1	Bayonet	6-8	.15	Brown	7A103	Type #47
M2	Bayonet	6-8	.15	Brown	7A103	Type #47

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA AIRLINE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	REMARKS
M3A	P-81	LQD-1J	QJ Q33J	P-81 W22AB	A65MG A82A	Model 94WG-2748A
B	P-77					Model 94WG-2749A

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4A	Switch	2A393	Band-Phono, Model 94WG-2749A
B	Switch	2A395	Band-Phono, Model 94WG-2748A
M5	2 Gang Var. Cap.	14A309	(14-507MMF, 14-197MMF)
A6	Trimmer	17A256	BC Ant. Adj.
A13	Trimmer	17A255	FM Osc. Adj.
	Dial Glass	58X727	Model 94WG-2748A
	Dial Glass	58X729	Model 94WG-2749A
	Dial Pointer	15X281	Model 94WG-2748A
	Dial Pointer	15X281	Model 94WG-2749A



CHEVROLET
MODEL 986067

CHEVROLET
MODEL 986067

CHEVROLET MODEL 986067

TRADE NAME	Chevrolet, Model 986067
MANUFACTURER	Chevrolet Motor Div., General Motors Corp., Detroit 2, Michigan
TYPE SET	Battery Operated Custom-Built Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 DET-AVC-AF, 6V6GT Power Output, 0Z4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 6.1 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 6SA7 (V2). Low side to chassis.	262KC (400 ∿ Mod.)	Turn pointer to the high frequency end of the dial.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	70MMF	High side thru dummy to antenna connector. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check the position of the oscillator coil slug. The rear of the slug should be 1 3/4 inches from the mounting end of the coil. Adjust A6, A7 and A8 for maximum output.
3.	70MMF	"	1400KC	Tune for maximum output.	"	A8, A9	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement can be made.
4.	70MMF	"	800KC	"	"		Set pointer to 800KC by means of the adjustment screw located on the pointer connecting link.

After set is installed, fully extend antenna and tune in a weak station near 1400KC. Adjust A7 for maximum volume.

PUSHBUTTON ADJUSTMENTS

Press the pushbutton to the left and pull out. Tune in the desired station manually and press the pushbutton all the way in. Repeat this prodedure for each pushbutton.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

CHEVROLET
MODEL 986067

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6SK7	6SK7	8N	
V2	Converter	6SA7	6SA7	8R	
V3	IF Amp.	6SK7	6SK7	8N	
V4	DET.-AVC-AF	6SQ7	6SQ7	8Q	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	0Z4	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHEVROLET PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	400	7240724	AF44J4A	UP2245C		EL-322	■ Filter
B	20	400						▲ Filter
C	20	25						Output Cathode Bypass
C2	.05	400	7230592	P488-05	PTE4S5		TM-15	Decoupling
C3	.001	600	1217790	P688-001	PTE6D1	GP2L-001	TM-21	RF Coupling
C4	100		7256276					Fixed Trimmer
C5	.05	200	7230592	P288-05	PTE4S5		TM-15	AVC Filter
C6	.005	600	7230767	P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C7	.05	400	7230592	P488-05	PTE4S5		TM-15	Tone Compensation
C8	.005	600	7232956	P688-005	PTE6D5	811-005	TM-25	Tone Compensation
C9	.00075	400	7240738	1468-00075	1W5T7	GP2K-750	1FM-37	Tone Compensation
C10	.001	600	7239188	P688-001	PTE6D1	GP2L-001	TM-21	Audio Coupling
C11	.004	800	7230767	P1088-004	PTE16D4		MB-24	Output Plate Bypass
C12	.006	1600	7240906	P1688-006	PTE16D6		MB-26	Buffer

CONTROLS

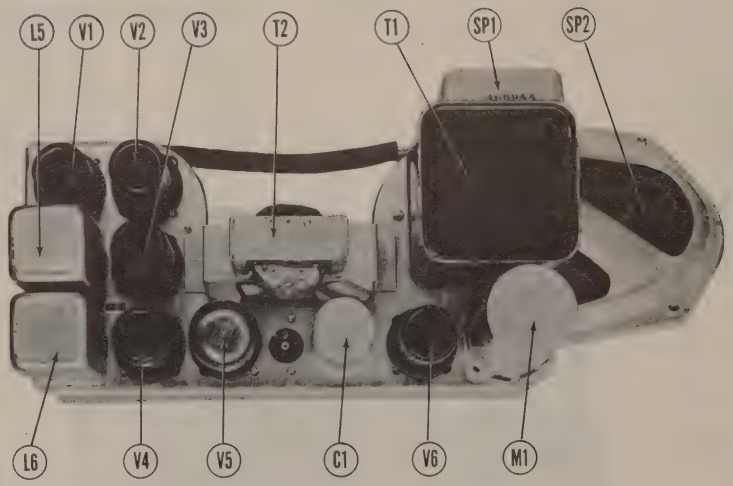
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	Switch	½	7256188			Tone control
B	300KΩ	½				Volume control and power switch
R2	1000Ω	1				Sensitivity control-Wire Wound See Note

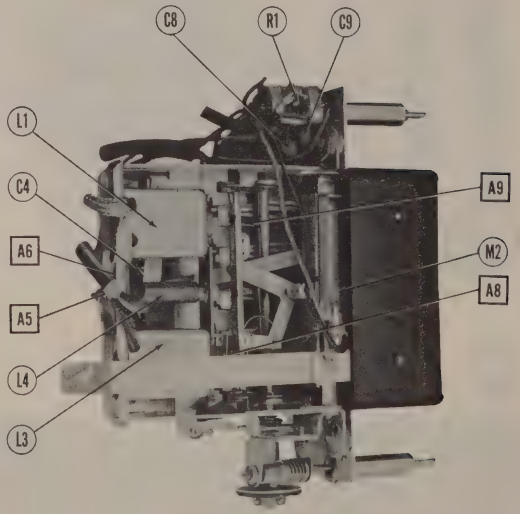
Note. Some models use 2000Ω control part No. 7242204.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	IDENTIFICATION CODES
R3	220Ω	½	7237825	BW-½-220	RF Cathode
R4	2.2 Meg.	½	1214563	BTS-2.2 Meg.	AVC Network
R5	10KΩ	1	1211085	BTA-10K	RF Plate
R6	15KΩ	2	7233653	BT-2-15K	Screen Dropping
R7	330KΩ	½	1214557	BTS-330K	AVC Network
R8	22KΩ	½	1214550	BTS-22K	Osc. Grid
R9	1 Meg.	½	1213282	BTS-1 Meg.	AVC Network
R10	15 Meg.	½	1213289	BTS-15 Meg.	AF Grid
R11	220KΩ	½	1214555	BTS-220K	AF Plate
R12	220KΩ	½	1214555	BTS-220K	Output Grid
R13	390Ω	1	1216149	BTA-390	Output Cathode
R14	2700Ω	2	7242844	BW-2-2700	Filter-Wire Wound
R15	5600Ω	1	7240918	BW-1-5600	Filter
R16	220Ω	1	7237994	BW-1-220	Power Transformer Primary Shunt

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC @ 4.1A	600VCT .052ADC			7255881	P-4065	P-4076	VT-5

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.3KΩ	4.4Ω	400Ω	.4Ω	7256009	A-3849 *	A-3019 *	RO-301 *	* Drill new mounting holes.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CHEVROLET PART No.	MEISSNER PART No.	
L1	Ant. Coil	8Ω		7256233		
L2	Ant. Choke	5.2Ω		7240251		
L3	RF Coil	8Ω		7256233		
L4	Osc. Coil	1Ω	5Ω	7256235		
L5	1st IF Trans.	48Ω	48Ω	7256011		
L6	2nd IF Trans.	27Ω		7256012		
L7	Hash Choke	0Ω		7255912		
L8	Hash Choke	0Ω		7256004		
L9	Hash Choke	0Ω		7256004		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CHEVROLET PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-810		
SP1	PM	4.2Ω	7255903	MOD. P69-V	69A2	
	CONE DIA.	V. C. DIA.				
SP2	6 1/8" x 9"	1"				

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				CHEVROLET PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6V	115 ∿	7239124	A-100	C-00	5300	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					CHEVROLET PART No.		
M2	Bayonet	6-8	.4	White			Type #55

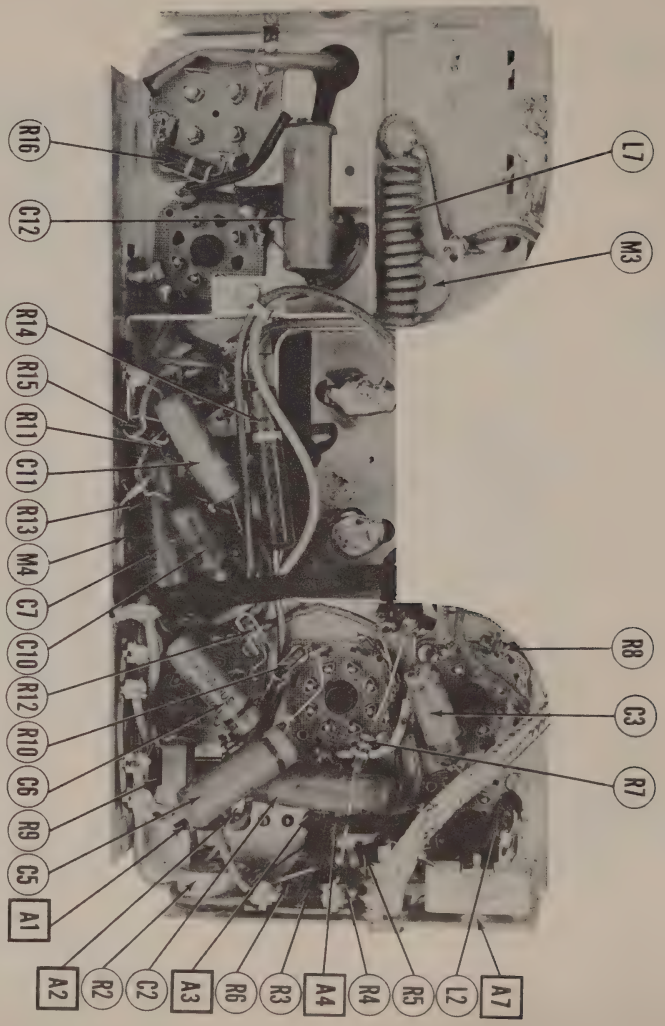
MISCELLANEOUS

ITEM No.	PART NAME	CHEVROLET PART No.	NOTES
M3	Spark Plate	7241259	
M4	Spark Plate	7241259	
M5	Spark Plate	7241259	
A5	Dual Trimmer	7242454	Osc. Adj.
A6			RF Adj.
A7	Trimmer	7255907	Ant. Adj.
	Fuse		14 Amp.

SET 90

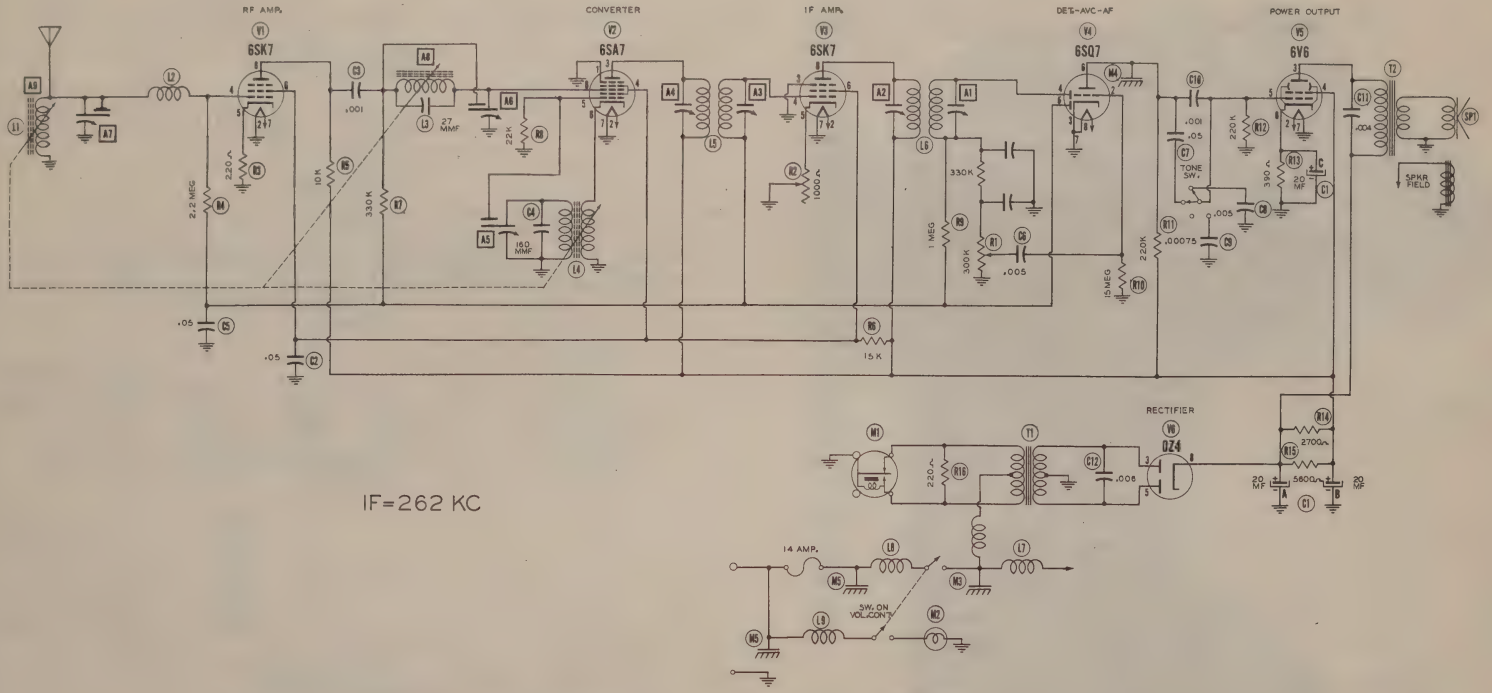
FOLDER 2

CHASSIS—BOTTOM VIEW



CHEVROLET MODEL 986067

CHEVROLET MODEL 986067



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0V.	0V.	0V.	-.2VDC	1.4VDC	67VDC	6VDC	170VDC
V 2	6SA7	0V.	6VDC	220VDC	67VDC	4-8.8VDC	0V.	0V.	-.4VDC
V 3	6SK7	0V.	6VDC	0V.	-.4VDC	0V. 5VDC	67VDC	0V.	220VDC
V 4	6SQ7	0V.	-.4VDC	0V.	-.4VDC	-.4VDC	105VDC	0V.	6VDC
V 5	6V6GT	0V.	6VDC	270VDC	220VDC	0V.	0V.	0V.	13VDC
V 6	0Z4	0V.	0V.	300VAC	0V.	300VAC	0V.	0V.	380VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0Ω	0Ω	0Ω	4 Meg.	220Ω	†17KΩ	.1Ω	†12KΩ
V 2	6SA7	0Ω	.1Ω	†2KΩ	†17KΩ	22KΩ	1Ω	0Ω	2 Meg.
V 3	6SK7	0Ω	.1Ω	0Ω	1.6 Meg.	0Ω 1000Ω	†17KΩ	0Ω	†2KΩ
V 4	6SQ7	0Ω	15 Meg.	0Ω	600KΩ	1.6 Meg.	†220KΩ	0Ω	.1Ω
V 5	6V6GT	Inf.	.1Ω	†380Ω	†2KΩ	220KΩ	250KΩ	0Ω	390Ω
V 6	0Z4	0Ω	Inf.	290Ω	Inf.	315Ω	Inf.	Inf.	150KΩ

† MEASURED FROM PIN 8 OF V6.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

DUMONT MODEL
RA103 (CH. 7040A1, 7040A2)

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MODEL RA103 "SAVOY"

DUMONT MODEL
RA103 (CH. 7040A1, 7040A2)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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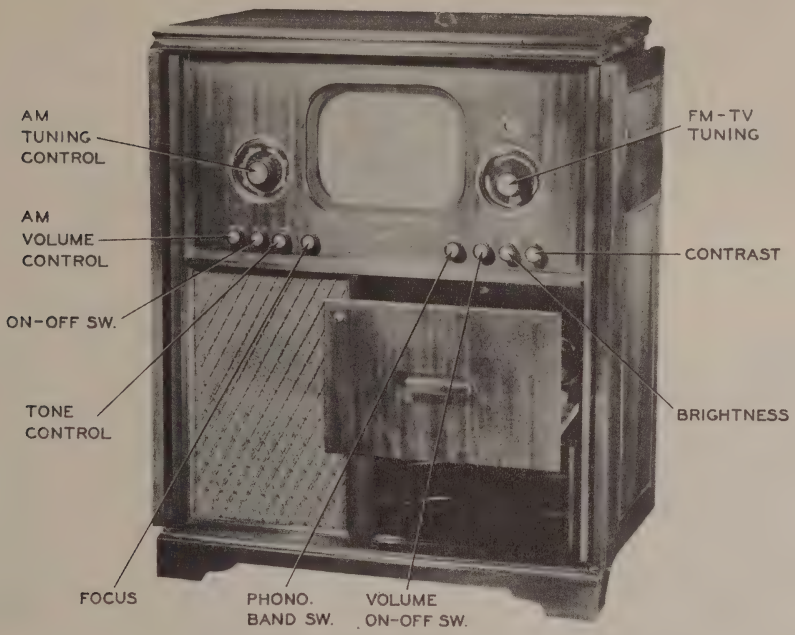
Date 3/50 Set No. 90—Folder No. 3



DUMONT MODEL RA103 "Savoy"

TRADE NAME	Dumont Model RA103 "Chatham & Stratford" (Ch. 7040A1), RA103 "Savoy" (Ch. 7040A2)
MANUFACTURER	Allen B. Dumont Laboratories, 2 Main Ave., Passiac, New Jersey
TYPE SET	TV-AM-FM-Phono Combination Receiver ("Chatham & Stratford" Models TV & FM only)
TUBES	Thirty Four-"Savoy" Models Twenty Eight-"Chatham & Stratford"
POWER SUPPLY	110-120 Volts AC-60 Cycle
TUNING RANGE	TV & FM 44 thru 216MC (continuous tuning) AM 535-1620KC
RATINGS	(TV) 2.7 Amp. at 117 Volts AC (AM) .62 Amp. at 117 Volts AC (FM) 1.5 Amp. at 117 Volts AC

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FOR SERVICE INFORMATION ON RECORD CHANGER UNIT, SEE WEBSTER MODEL 256 PHOTOFACT SET #88 FOLDER #13 OR RECORD CHANGER MANUAL CM-2.

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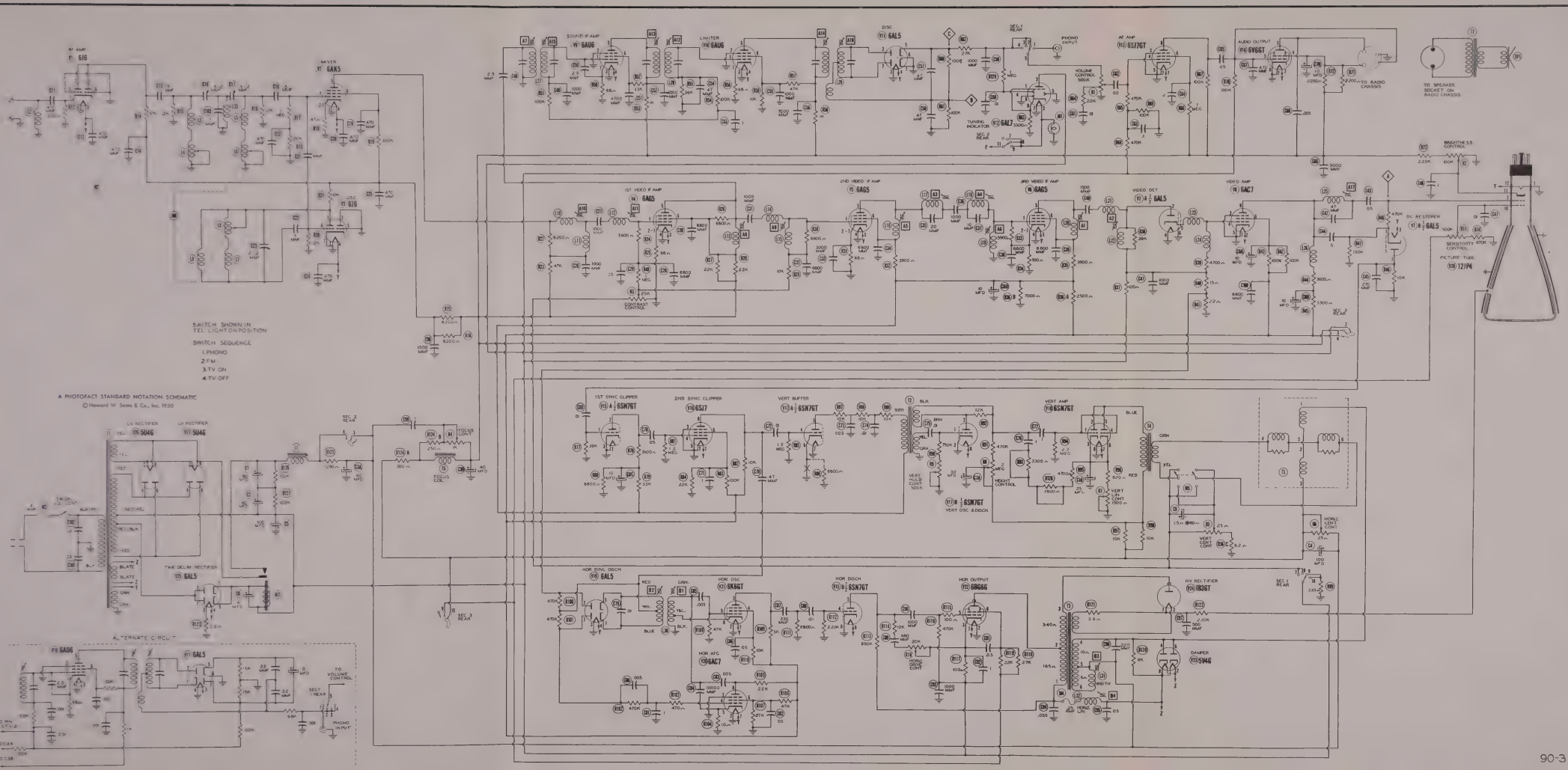
DUMONT
MODEL RA103 (Ch. 7040A1, 7040A2)


SWITCH SHOWN IN TEL. LIGHT ON POSITION
SWITCH SEQUENCE
1. PHONO
2. F.M.
3. T.V. ON
4. T.V. OFF
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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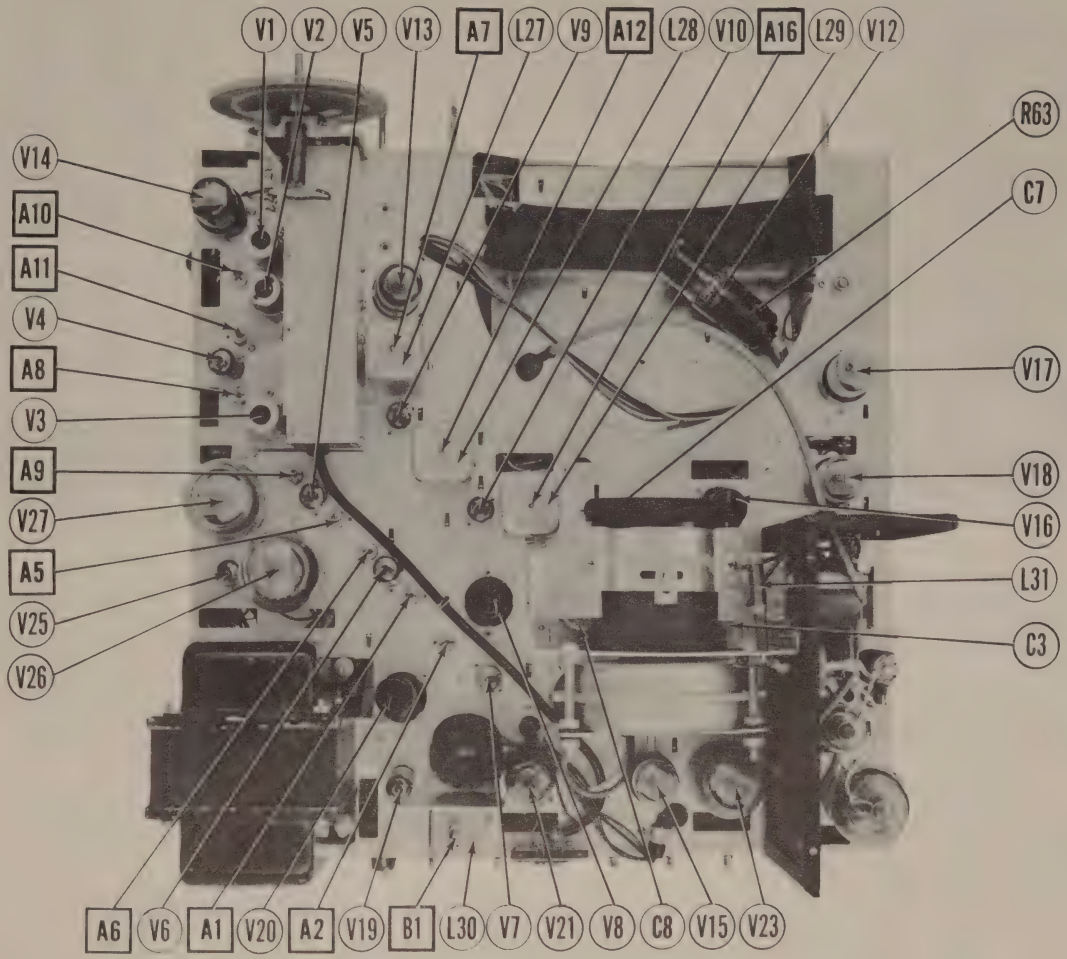
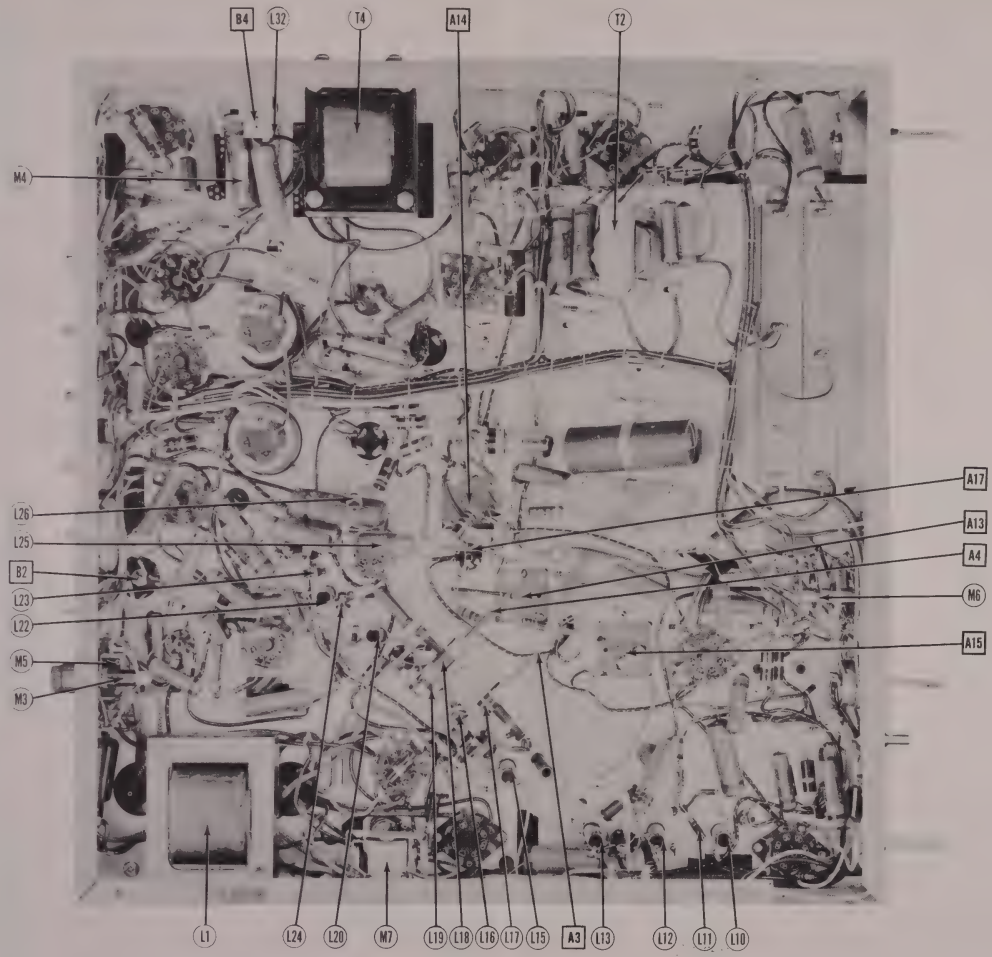
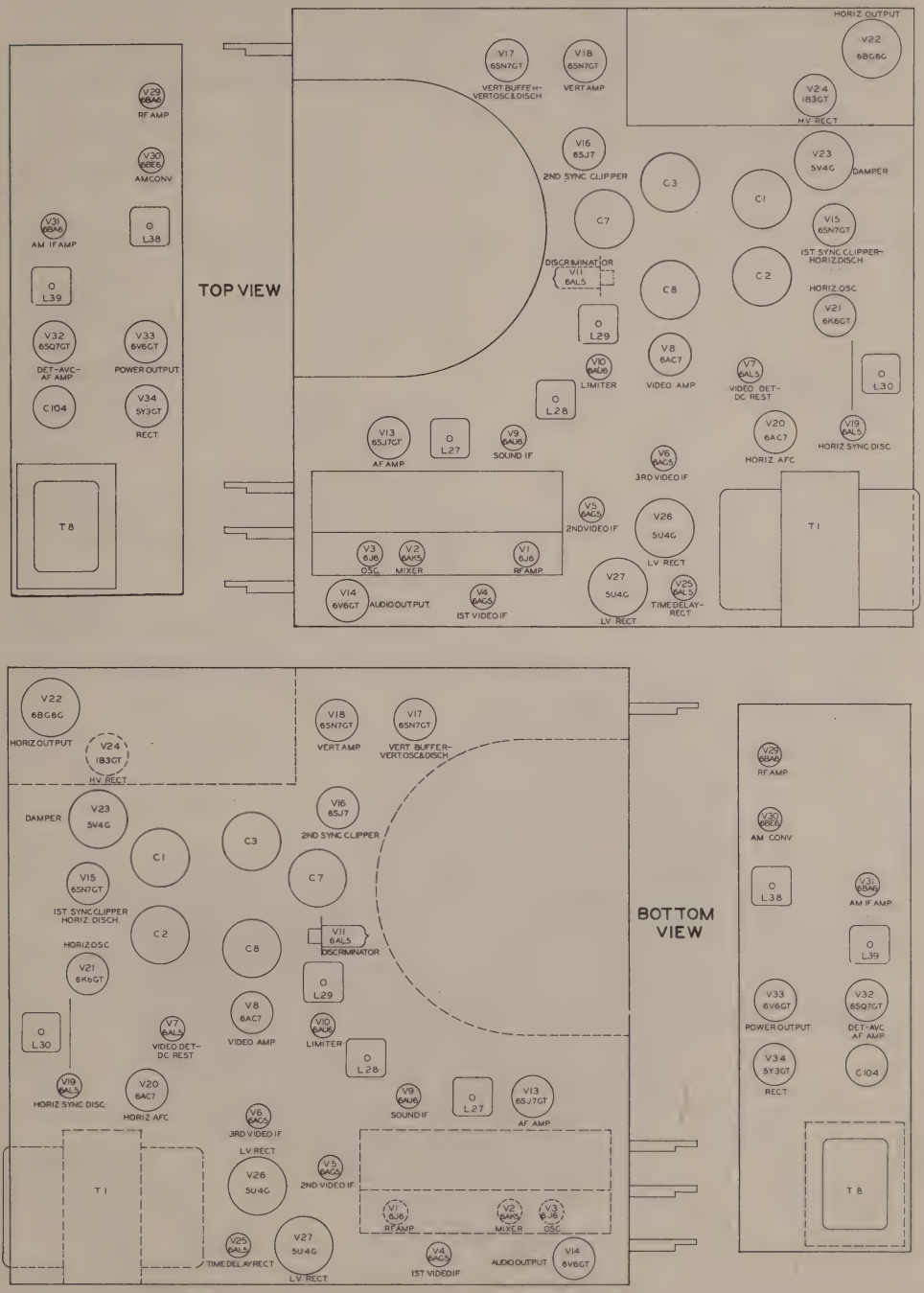
ALTERNATE CIRCUIT
TO SPEAKER SOCKET ON RADIO CHASSIS
TO RADIO CHASSIS
PICTURE TUBE
V20 12JP4
90-3



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the receiver is to be aligned with the picture tube removed, remove the horizontal oscillator tube (V21) from its socket.

VIDEO IF ALIGNMENT

Set the contrast control to the mid-position of its range.
Keep the output of the sweep generator low as possible to prevent overloading of the circuits.
Remove the local oscillator tube (V3) from its socket to prevent erroneous indications.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (Grid) of 6AG5 (V6). Low side to chassis.	24MC (10MC Sweep)	26.4MC (Unmod.)	Any	Vert. Amp. to Point (A). Low side to chassis.	A1, A2	Adjust for response curve similar to Fig 2.
2.	.01MFD	High side to pin 1 (Grid) of 6AG5 (V5). Low side to chassis.	Not used	21.9MC (400 ∿ AM modulated)	"	"	A3	Adjust for MINIMUM 400 ∿ indication on scope.
3.	.01MFD	"	"	27.9MC (400 ∿ AM modulated)	"	"	A4	"
4.	.01MFD	"	24MC (10MC SWP)	26.4MC (Unmod.)	"	Vert. Amp. thru detector probe (Fig 1) to pin 5 (plate) of 6AG5 (V6). Low side to chassis.	A5, A6	Adjust for response curve similar to Fig 3. Repeat step 3.
5.	.01MFD	"	"	"	"	Vert. Amp. to Point (A) Low side to chassis.		Check for response curve similar to Fig 4. If necessary retouch A5 and A6.
6.	.01MFD	High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis.	Not used	21.9MC (400 ∿ AM modulated)	"	"	A7	Adjust for minimum 400 ∿ response on scope.
7.	.01MFD	"	24MC (10MC SWP)	26.4MC (Unmod.)	"	Vert. Amp. thru detector probe to pin 5 (plate) of 6AG5 (V5). Low side to chassis.	A8, A9	Adjust for response curve similar to Fig 5.
8.	.01MFD	"	"	"	"	Vert. Amp. to Point (A) Low side to chassis.		Check for response curve similar to Fig 6. If necessary retouch A8 and A9.
9.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	"	"	"	Vert. Amp. thru detector probe to pin 5 (plate) of 6AG5 (V4). Low side to chassis.	A10, A11	Adjust for response curve similar to Fig 7.
10.	Direct	"	"	"	"	Vert. Amp. to Point (A) Low side to chassis.		Check for response curve similar to Fig 8. If necessary retouch A1 thru A11 for proper response.

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V9). Low side to chassis.	21.9MC (1MC SWP)	21.9MC	Any	Vert. Amp. thru detector probe to pin 5 (plate) of 6AU6 (V10). Low side to chassis.	A12, A13	Adjust for maximum amplitude and symmetry as per Fig 9.
12.	.01MFD	"	Not used	21.9MC (Unmod.)	"	Use VTVM. DC Probe to point (B). Common to chassis.	A14, A15	Adjust for maximum deflection.
13.	.01MFD	"	"	"	"	DC Probe to Point (C). Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	.01MFD	High side to pin 4 (Grid) of 6AC7 (V8). Low side to chassis.	Not used	4.5MC (400 ∿ AM modulated)	Any channel not used locally	Vert. Amp. thru detector probe to point (A). Low side to chassis.	A17	Adjust for minimum 400 ∿ response on scope.

THE ADJUSTMENTS ON THE TUNER PORTION OF THIS RECEIVER ARE PRE-SET AT THE FACTORY AND SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

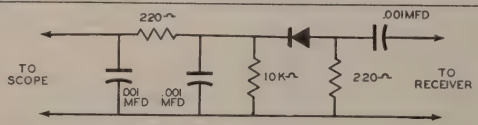


FIG. 1

FIG. 2

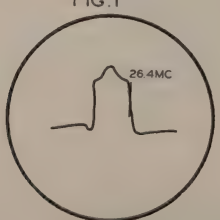


FIG. 3

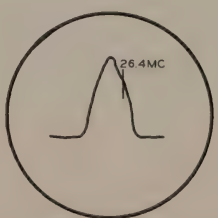


FIG. 4

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	FUNCTION SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
15.	.25MFD	High side to stator on center section of tuning gang. Low side to chassis.	455KC (400 ∿ Mod.)	BC	Tuning gang fully open	Across voice coil	A18, A19, A20, A21	Adjust for maximum output.
16.		Loop	1500KC	"	1500KC	"	A22, A23, A24	Reinstall set in cabinet and connect loop antenna. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FIG.5

FIG.6

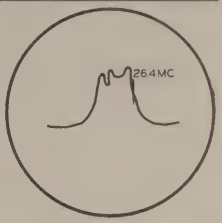


FIG.7

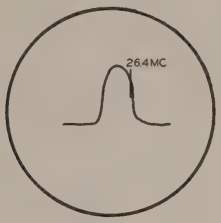
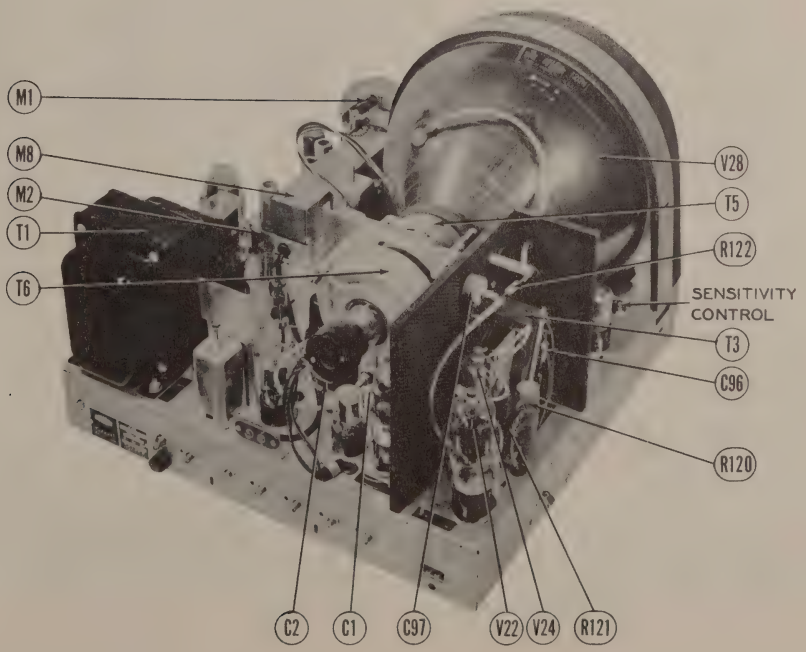


FIG.8

FIG. 9



CHASSIS-TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	145VDC	145VDC	6.3VAC	0V.	0V.	0V.	2.1VDC		
V 2	6AK5	-1.6VDC	0V.	0V.	6.3VAC	150VDC	50VDC	0V.		
V 3	6J6	117VDC	0V.	0V.	6.3VAC	0V.	§-7.6VDC	0V.		
V 4	6AG5	-.1VDC	.8VDC	6.3VAC	0V.	120VDC	120VDC	.8VDC		
V 5	6AG5	-.1VDC	.6VDC	6.3VAC	0V.	105VDC	105VDC	.6VDC		
V 6	6AG5	0V.	.9VDC	6.3VAC	0V.	110VDC	110VDC	.9VDC		
V 7	6AL5	.4VDC	-2.3VDC	6.3VAC	0V.	-2VDC	0V.	-.1VDC		
V 8	6AC7	0V.	6.3VAC	0V.	-2VDC	0V.	150VDC	0V.	140VDC	
V 9	6AU6	-.2VDC	0V.	0V.	6.3VAC	260VDC	150VDC	.8VDC		
V 10	6AU6	-.4VDC	0V.	0V.	6.3VAC	260VDC	40VDC	.1VDC		
V 11	6AL5	0V.	-.5VDC	0V.	6.3VAC	-.1VDC	0V.	-.4VDC		
V 12	6AL7GT	1.1VDC	6.3VAC	260VDC	0V.	0V.	0V.	0V.	1.1VDC	
V 13	6SJ7GT	0V.	0V.	0V.	-.6VDC	0V.	50VDC	6.3VAC	180VDC	
V 14	6V6GT	0V.	6.3VAC	200VDC	215VDC	-6.3VDC	-10VDC	0V.	0V.	
V 15	6SN7GT	-.3VDC	17VDC	0V.	-25VDC	50VDC	0V.	0V.	6.3VAC	
V 16	6SJ7	0V.	0V.	0V.	-2.1VDC	0V.	50VDC	6.3VAC	250VDC	
V 17	6SN7GT	-35VDC	155VDC 300VDC	0V.	-3.3VDC	65VDC	0V.	0V.	6.3VAC	
V 18	6SN7GT	0V.	360VDC	10VDC 17VDC	0V.	360VDC	10VDC 17VDC	6.3VAC	0V.	
V 19	6AL5	3.1VDC	-1.4VDC	0V.	6.3VAC	1.8VDC	0V.	-.6VDC		
V 20	6AC7	0V.	0V.	0V.	-.6VDC	0V.	75VDC	6.3VAC	225VDC	
V 21	6K6GT	0V.	0V.	180VDC	180VDC	-30VDC	260VDC	6.3VAC	.4VDC	
V 22	6BG6G	0V.	0V.	♦9.4VDC	♦-1.9VDC	♦-1.9VDC	410VDC	6.3VAC	♦250VDC	TOP CAP
V 23	5V4G	85VDC	490VDC	210VDC	410VDC	410VDC	410VDC	370VDC	490VDC	
V 24	1B3GT		° DO NOT MEASURE							
V 25	6AL5	40VDC	-12.5VDC	.2VAC	6.3VAC	40VDC	0V.	-12.5VDC		
V 26	5U4G	-2.3VDC	430VDC	0V.	400VAC	-12.5VDC	400VAC	410VDC	430VDC	
V 27	5U4G	0V.	430VDC	0V.	400VAC	0V.	400VAC	0V.	430VDC	
V 28	12JP4	0V.	1.1VDC	PIN 10 215VDC	PIN 11 87VDC	PIN 12 6.3VAC				
▲ V 29	6BA6	-6VDC	0V.	0V.	6.3VAC	230VDC	93VDC	0V.		
▲ V 30	6BE6	§-2.9VDC	0V.	0V.	6.3VAC	230VDC	93VDC	-.7VDC		
▲ V31	6BA6	-.7VDC	0V.	0V.	6.3VAC	225VDC	93VDC	0V.		
▲ V32	6SQ7GT	0V.	-.7VDC	0V.	-.6VDC	-.6VDC	107VDC	6.3VAC	0V.	
▲ V33	6V6GT	0V.	0V.	225VDC	220VDC	0V.	0V.	6.3VAC	9VDC	
▲ V34	5Y3GT	0V.	290VDC	55VAC	300VAC	55VAC	300VAC	0V.	290VDC	

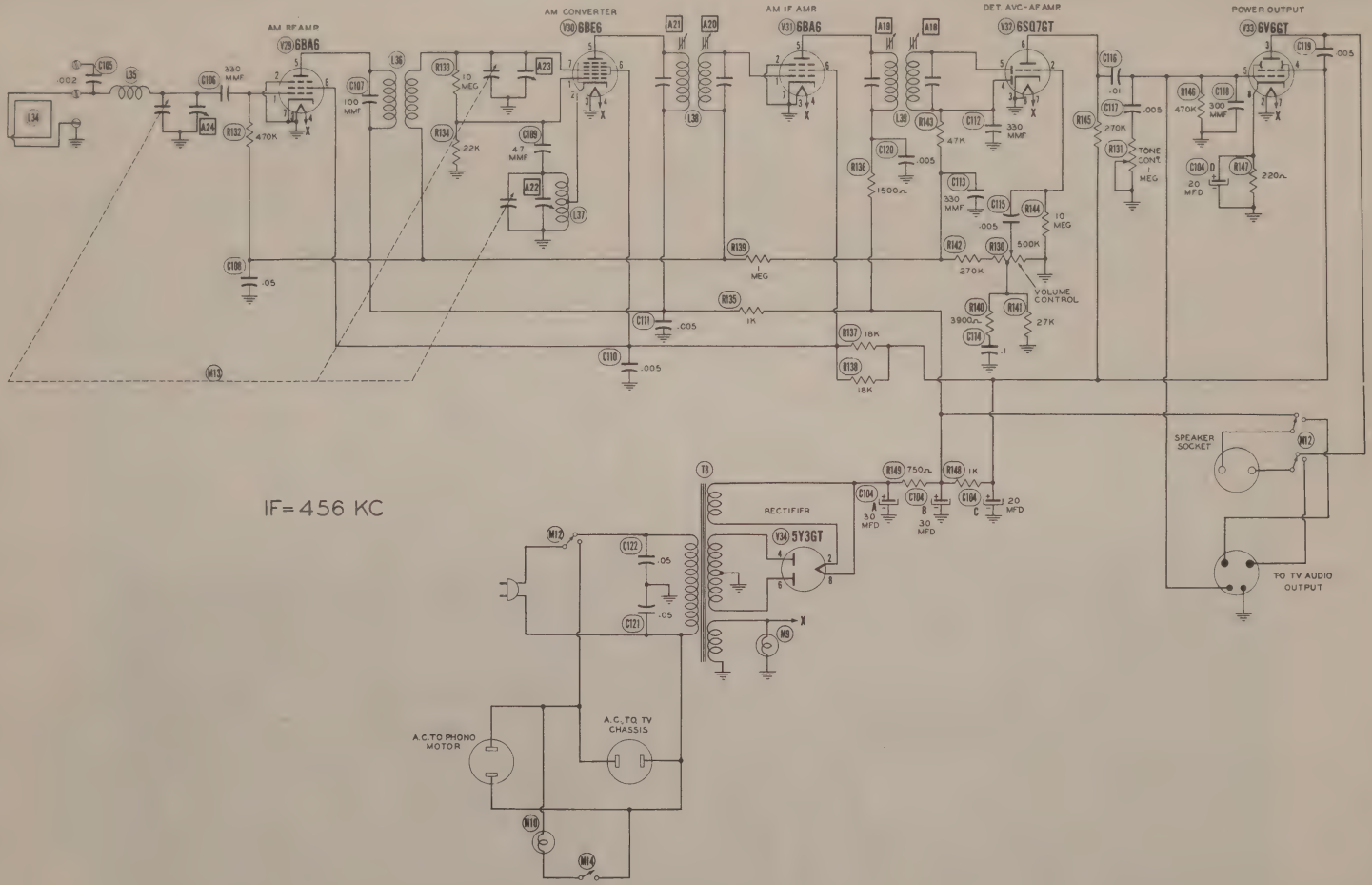
§ TAKEN WITH VACUUM TUBE VOLTMETER.
♦ MEASURED FROM JUNCTION OF C5 & M7.
° DO NOT MEASURE.
▲ TAKEN IN AM POSITION.
NOTE: CONTRAST CONTROL SET AT MAXIMUM FOR THESE READINGS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†11KΩ	†11KΩ	.1Ω	0Ω	0Ω	0Ω	200Ω		
V 2	6AK5	1 Meg.	47Ω	0Ω	.1Ω	†50KΩ	†330KΩ	47Ω		
V 3	6J6	†11KΩ	0Ω	0Ω	.1Ω	0Ω	12KΩ	0Ω		
V 4	6AG5	1 Meg.	68Ω	.1Ω	0Ω	†12KΩ	†12KΩ	68Ω		
V 5	6AG5	1 Meg.	68Ω	.1Ω	0Ω	†7KΩ	†7KΩ	68Ω		
V 6	6AG5	.7Ω	100Ω	.1Ω	0Ω	†7KΩ	†7KΩ	100Ω		
V 7	6AL5	150KΩ	30Ω	.1Ω	0Ω	5KΩ	0Ω	10KΩ		
V 8	6AC7	0Ω	.1Ω	0Ω	5KΩ	0Ω	†50KΩ	0Ω	†8KΩ	
V 9	6AU6	250KΩ	0Ω	0Ω	.1Ω	†2KΩ	†35KΩ	53Ω		
V 10	6AU6	56KΩ	0Ω	0Ω	.1Ω	†2KΩ	†13KΩ	68Ω		
V 11	6AL5	0Ω	100KΩ	0Ω	.1Ω	150KΩ	0Ω	100KΩ		
V 12	6AL7GT	3.3KΩ	.1Ω	†1000Ω	1.3 Meg.	0Ω	0Ω	0Ω	3.3KΩ	
V 13	6SJ7GT	0Ω	0Ω	0Ω	570KΩ	0Ω	†1 Meg.	.1Ω	†100KΩ	
V 14	6V6GT	0Ω	.1Ω	†2.5KΩ	†2KΩ	85KΩ	54Ω	0Ω	0Ω	
V 15	6SN7GT	39KΩ	†15KΩ	0Ω	220KΩ	†680KΩ	0Ω	0Ω	.1Ω	
V 16	6SJ7	0Ω	0Ω	0Ω	1.2 Meg.	0Ω	†24KΩ	.1Ω	†11KΩ	
V 17	6SN7GT	1 Meg.	†2.5 Meg. †470KΩ	0Ω	1.2 Meg.	†36KΩ	0Ω	0Ω	.1Ω	
V 18	6SN7GT	2.2 Meg.	†6KΩ	2.3KΩ 820Ω	2.2 Meg.	†6KΩ	2.3KΩ 820Ω	.1Ω	0Ω	
V 19	6AL5	470KΩ	22Ω	0Ω	.1Ω	470KΩ	Inf.	1 Meg.		
V 20	6AC7	0Ω	0Ω	0Ω	1.8 Meg.	10Ω	†20KΩ	.1Ω	†23KΩ	
V 21	6K6GT	0Ω	0Ω	†6KΩ	†11KΩ	47KΩ	†800Ω	.1Ω	20Ω	
V 22	6BG6G	0Ω	0Ω	156Ω	470KΩ	470KΩ	†80Ω	.1Ω	†13KΩ	TOP CAP †6KΩ
V 23	5V4G	†80KΩ	†7KΩ	†280KΩ	†85Ω	†80Ω	†85Ω	†280Ω	†7KΩ	
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP †6KΩ
V 25	6AL5	5KΩ	56Ω	1.5Ω	.1Ω	5KΩ	Inf.	56Ω		
V 26	5U4G	30Ω	5KΩ	Inf.	70Ω	56Ω	72Ω	7KΩ	5KΩ	
V 27	5U4G	Inf.	5KΩ	Inf.	70Ω	Inf.	72Ω	Inf.	5KΩ	
V 28	12JP4	0Ω	620KΩ	PIN 10 260KΩ	PIN 11 10KΩ	PIN 12 .1Ω				
▲ V 29	6BA6	2 Meg.	0Ω	0Ω	.1Ω	¶1.8KΩ	¶11KΩ	0Ω		
▲ V 30	6BE6	22KΩ	.5Ω	0Ω	.1Ω	¶1.8KΩ	¶11KΩ	1.5 Meg.		
▲ V31	6BA6	1.5 Meg.	0Ω	0Ω	.1Ω	¶2.3KΩ	¶11KΩ	0Ω		
▲ V32	6SQ7GT	0Ω	10 Meg.	0Ω	800KΩ	800KΩ	¶270KΩ	.1Ω	0Ω	
▲ V33	6V6GT	0Ω	0Ω	¶1.2KΩ	¶1.8KΩ	85KΩ	Inf.	.1Ω	220Ω	
▲ V34	5Y3GT	Inf.	35KΩ	Inf.	140Ω	Inf.	150Ω	Inf.	35KΩ	

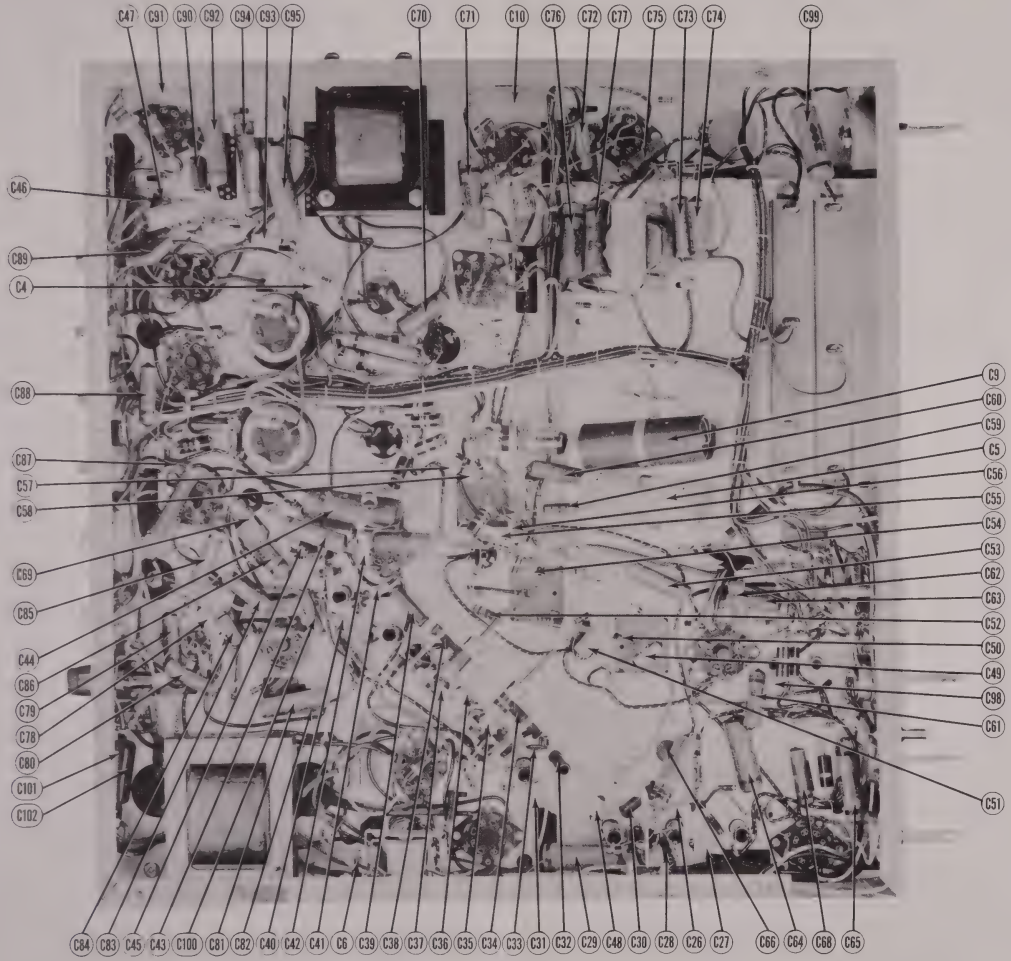
† MEASURED FROM PIN 8 OF V27.
¶ MEASURED FROM PIN 8 OF V34.
▲ TAKEN IN AM POSITION.
NOTE: RELAY CONTACTS MUST BE CLOSED FOR B+ RESISTANCE MEASUREMENTS ON TV CHASSIS.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

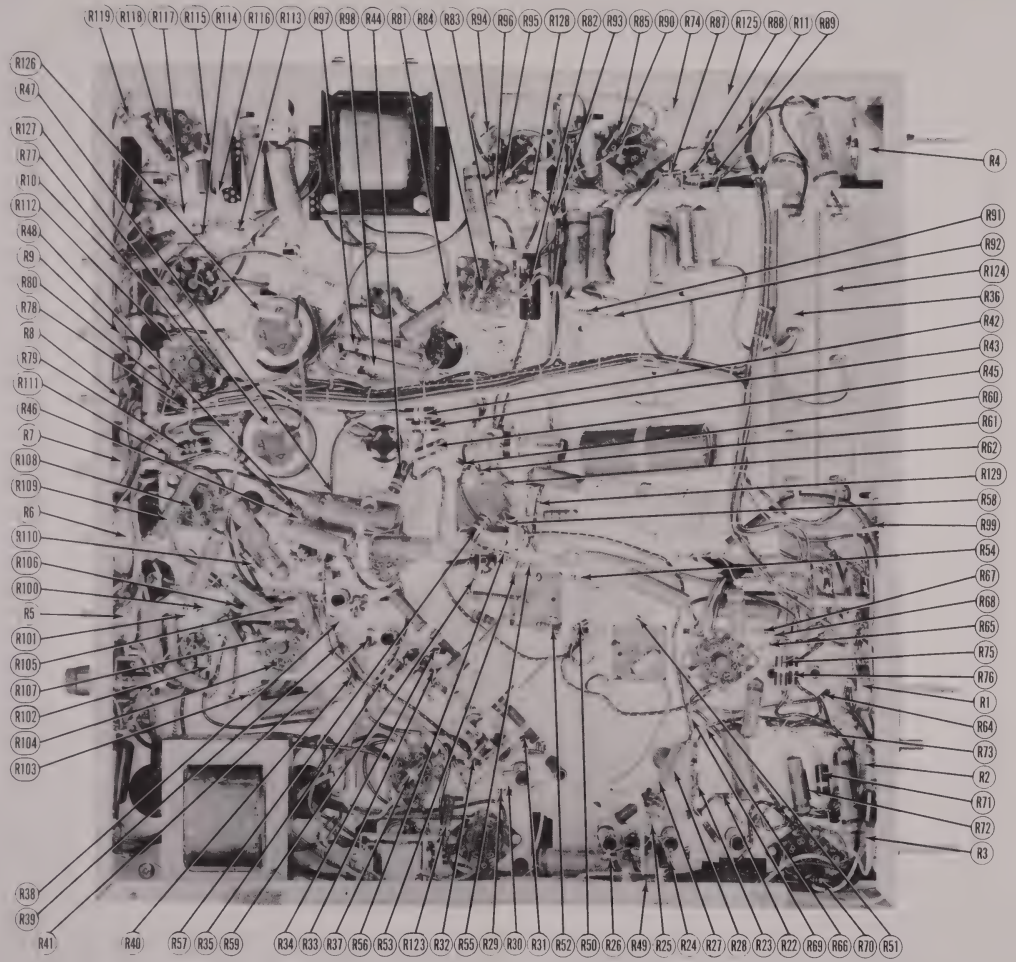


90-3

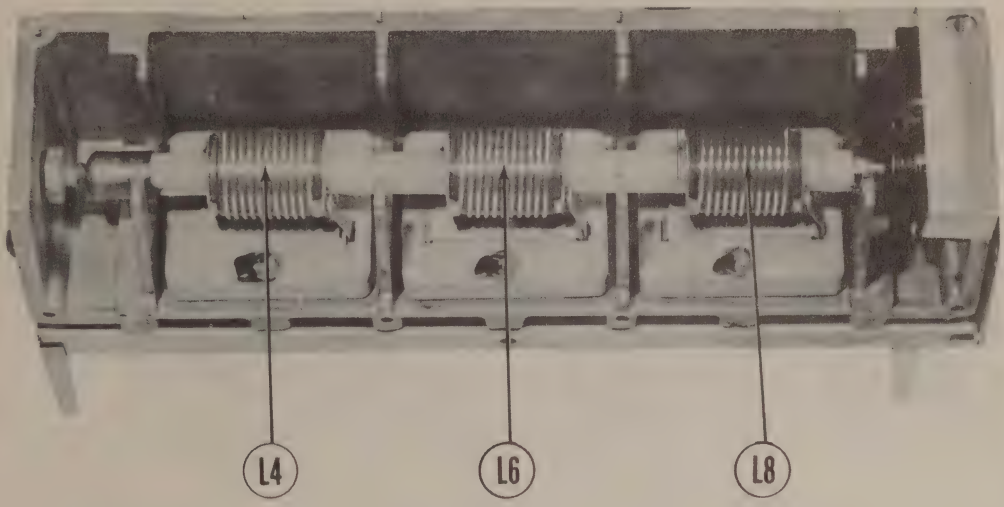
RADIO SCHEMATIC



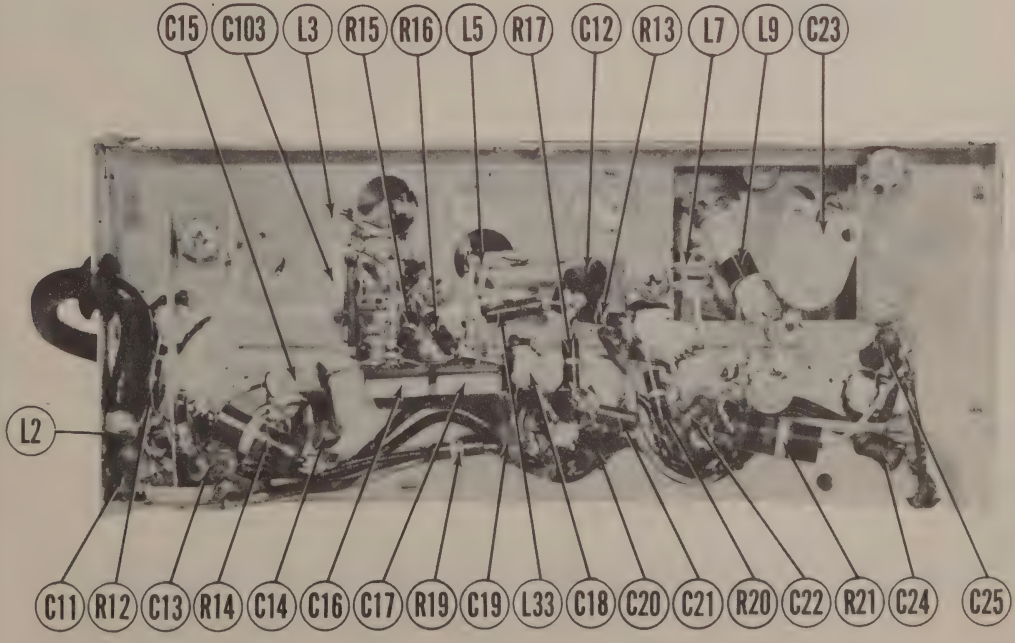
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



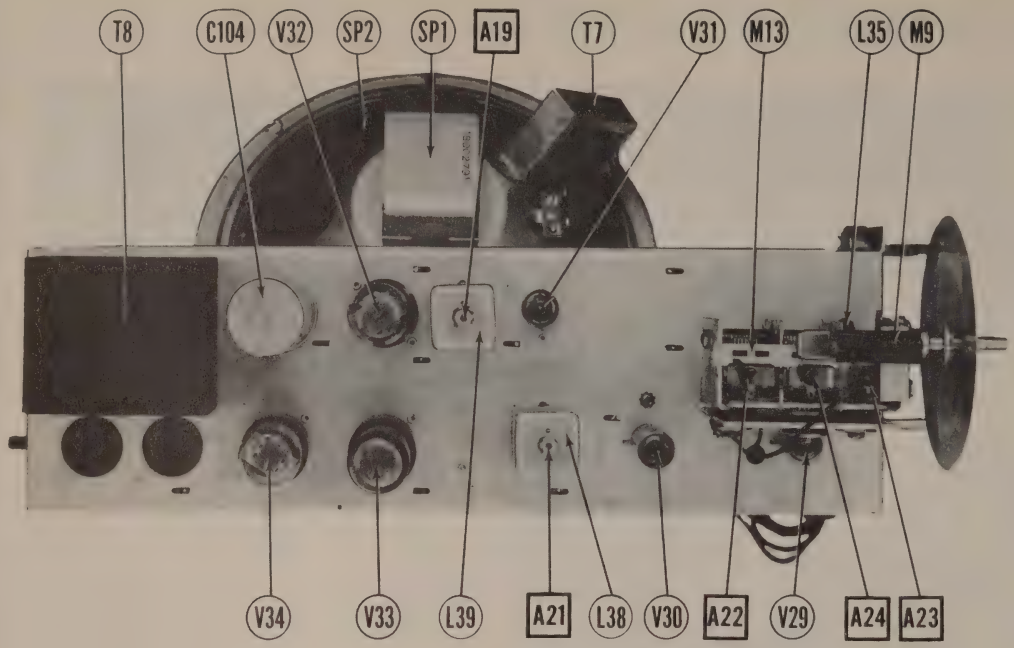
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



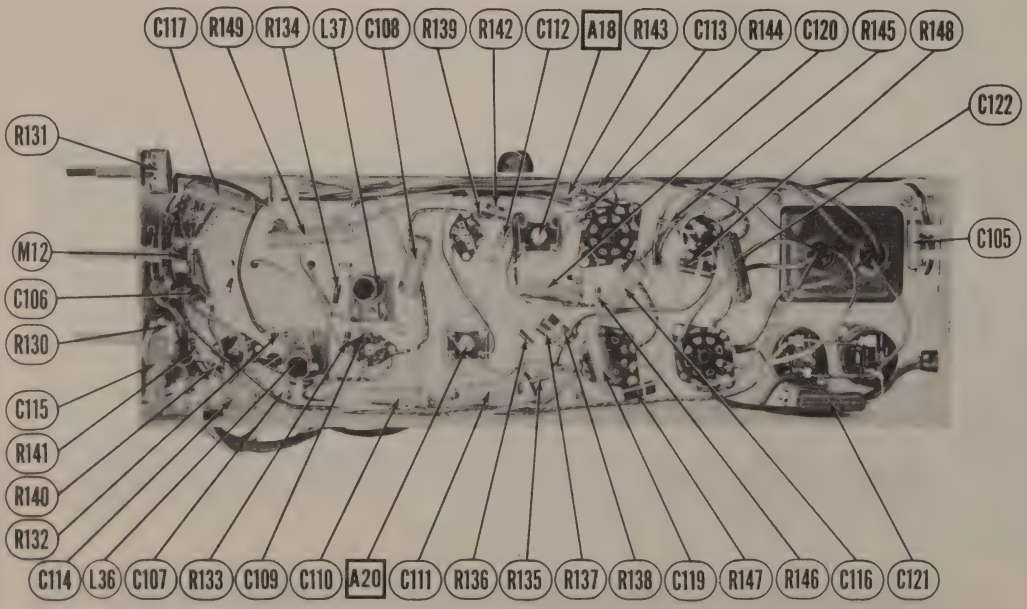
INDUCTUNER



RF TUNER-BOTTOM VIEW



RADIO CHASSIS-TOP VIEW



RADIO CHASSIS-BOTTOM VIEW

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		DUMONT PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6AK5	6AK5	7BD	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	Video Det. - DC Restorer	6AL5	6AL5	6BT	
V8	Video Amp.	6AC7	6AC7	8N	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Limiter	6AU6	6AU6	7BK	
V11	Disc.	6AL5	6AL5	6BT	
V12	Tuning Ind.	6AL7GT	6AL7GT	8CH	
V13A	AF Amp.	6SJ7GT	6SJ7GT	8N	
B	AF Amp.	6SJ7	6SJ7	8N	
V14	Audio Output	6V6GT	6V6GT	7AC	
V15	1st Sync. Clipper -Hor. Disch.	6SN7GT	6SN7GT	8BD	
V16A	2nd Sync. Clipper	6SJ7	6SJ7	8N	
B	2nd Sync. Clipper	6SJ7GT	6SJ7GT	8N	
V17	Vert. Buffer - Osc. - Disch.	6SN7GT	6SN7GT	8BD	
V18	Vert. Amp.	6SN7GT	6SN7GT	8BD	
V19	Hor. Sync. Disc.	6AL5	6AL5	6BT	
V20	Hor. AFC	6AC7	6AC7	8N	
V21	Hor. Osc.	6K6GT	6K6GT	7S	
V22	Hor. Output	6BG6G	6BG6G	5BT	
V23	Damper	5V4G	5V4G	5L	
V24	HV Rectifier	1B3GT	1B3GT	3C	
V25	Time Delay Rect.	6AL5	6AL5	6BT	
V26	LV Rectifier	5U4G	5U4G	5T	
V27	LV Rectifier	5U4G	5U4G	5T	
V28	Picture Tube	12JP4	12JP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1	80	350	3-1408	AFH16H	UP8AJ242		TVL-5	Filter
C2	80	350	3-1408	AFH16H	UP8AJ242		TVL-5	Filter
C3A	40	450	3-1413	AF88J	UP4445		TVL-64	▲ Filter
B	40	450						▲ Filter
C4	100	25	3-1409	PRS50/100	BRH251A		TVA-8	Hor. Cent. Cont. Bypass
C5	500	25	3-1287	PRS25/500	BRH255A		TVA-10	Bias Filter
C6	4	150	3-1367	PRS150/4	BR415		UT-41	Filter
C7A	30	450	3-1411	AF66J	UP7BJ912		TVL-69	● Decoupling
B	10	450						▲ Output Decoupling
C8A	10	350	3-1412	AF2222J	UP11145		TVL-34	● V. Amp. Screen Bypass
B	10	350						■ Low Pass Filter
C	10	300						▲ Sync. Clipper Decoupling
D	10	300						Decoupling
C9	1.5 Ω @ 60%	4	3-1225	PRS6/1000	BRH620		TVA-2	Vert. Cent. Cont. Bypass
C10	25	50	3-1389	PRS50/25	BR255		TVA-15	Vert. Output Cath. Bypass
C11	470		CM20C471K	GP470M		GP2K-470		RF Coupling
C12	470		CM20C471K	GP470M		GP2K-470		Mixer Grid Filter
C13	470		CM20C471K	GP470M		GP2K-470		RF Filament Bypass
C14	470		CM20C471K	GP470M		GP2K-470		RF Bypass
C15	15		3-1205	GP15K		GP1K-15		RF Coupling
C16	3-12		3-307			557-NPO-3-12		Fixed Trimmer
C17	3-12		3-307			557-NPO-3-12		Fixed Trimmer
C18	15		3-1205	GP15K		GP1K-15		RF Coupling
C19	470		CM20C471K	GP470M		GP2K-470		Mixer Screen Bypass
C20	470		CM20C471K	GP470M		GP2K-470		Mixer Filament Bypass
C21	1		3-1215					Osc. Coupling
C22	5		3-1323	CI5CN030		N030K-5		Osc. Grid Cap.
C23	2-12		3-307			TS2A-N500-2-12		Fixed Trimmer
C24	470		CM20C471K	GP470M		GP2K-470		Osc. Filament Bypass
C25	470		CM20C471K	GP470M		GP2K-470		RF Bypass
C26	1000		3-1394	GP1000M		GP2L-001		Mixer Plate Decoupling
C27	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	IF Coupling
C28	6800		3-1392	GP6800M	PTE6D6	GP2-334-0068	TM-26	Bias Filter
C29	.25	200	3-42	P288-25	GT2P25		TC-2	Bias Filter
C30	6800			GP6800M	PTE6D6	GP2-334-0068	TM-26	1st V. IF Decoupling
C31	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	IF Coupling *
C32	6800		3-1392	GP6800M	PTE6D6	GP2-334-0068	TM-26	Bias Filter
C33	5000			BPD-5	1D5D5	811-005	29C1	2nd V. IF Cath. Bypass †
C34	6800		3-1392	GP6800M	PTE6D6	GP2-334-0068	TM-26	2nd V. IF Decoupling
C35	20		3-1401	C120JNPO	5R5Q2	NPOK-20	MS-42	Fixed Trimmer
C36	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	RF Coupling
C37	10		3-1308	C10JNPO	5R5Q1	NPOK-10	MS-41	Fixed Trimmer
C38	6800		3-1392	GP6800M	PTE6D6	GP2-334-0068	TM-26	3rd V. IF Cath. Bypass
C39	6800		3-1392	GP6800M	PTE6D6	GP2-334-0068	TM-26	3rd V. IF Decoupling
C40	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	IF Coupling *
C41	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	Bias Filter
C42	47		3-1273	CN47JNPO	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C43	.05	400	3-1402	P488-05	PTE4S5		TM-15	Video Coupling
C44	.5	400	3-1426	484-5	GT4P5		TC-5	Video Coupling
C45	270		3-1427	GP270M	5W5T25	GP2K-270	1FM-325	DC Res. Plate Bypass
C46	.1	200	3-1391	P288-1	PTE4P1		TM-1	Pic. Tube Cath. Dec.
C47	.01	600	3-1256	P688-01	PTE6S1	821-01	TM-11	Acc. Anode Bypass
C48	2.5		3-1457	CN2.5CNPO		NPOK-2.5		S. IF Coupling
C49	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	AVC Filter
C50	2.5		3-1428	CN2.5CNPO		NPOK-2.5		Fixed Trimmer
C51	4700	500	3-1394	1467-005	1D5D5	811-005	1FM-25	1st S. IF Screen Bypass §
C52	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	1st S. IF Decoupling
C53	.1	200	3-1391	P288-1	PTE2P1		TM-1	AVC Filter
C54	47		3-1420	GP47M	5W5Q5	GP1K-47	1FM-45	Limiter Grid Filter
C55	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	Limiter Screen Bypass
C56	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	Limiter Decoupling

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DUMONT PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	47		3-1420	GP47M	SW-SQ5	GP1K-47	1FM-45	RF Bypass
C58	47		3-1420	GP47M	SW-SQ5	GP1K-47	1FM-45	RF Bypass
C59	1000		3-1394	GP1000M	1W5DL	GP2L-001	1FM-21	De-emphasis
C60	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Tuning Ind. Filter
C61	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Tone Compensation
C62	02	400	3-146	P488-02	PTE4S2		TM-12	Audio Coupling
C63	05	200	3-1391	P288-05	PTE4P1		TM-1	Bias Filter
C64	1	400	3-1404	P488-1	PTE4P1		TM-1	1st AF Screen Bypass
C65	05	400	3-1402	P488-05	PTE4S5		TM-15	Audio Coupling
C66	5000			10D505	SW-SQ5	811-005	29C1	RF Bypass †
C67	470		3-1292	GP470M	5W5T5	GP2L-470	1FM-35	Output Grid Bypass † †
C68	005	600	3-157	P568-005	PTE6D5	811-005	TM-25	Output Plate Bypass
C69	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Sync. Coupling
C70	05	200	3-95	P288-05	PTE4S5		TM-15	Sync. Coupling
C71	005	200	3-1391	P288-05	PTE4P1		TM-1	2nd Sync. Clip. Screen Bypass
C72	01	600	3-1256	P568-01	PTE6S1	821-01	TM-11	Vert. Sync. Coupling
C73	005	600	3-157	P568-005	PTE6D5	811-005	TM-25	Integrator Net.
C74	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Integrator Net.
C75	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Vert. Osc. Grid Cap.
C76	1	400	3-1404	P488-1	PTE4P1		TM-1	Vert. Discharge
C77	1	400	3-1404	P488-1	PTE4P1		TM-1	Vert. Sweep Coupling
C78	47		3-1395	CM47JNPO	5RSQ5	NPOM-50	MS-45	Hor. Sync. Coupling
C79	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Fixed Trimmer
C80	.005	600	3-157	P568-005	PTE6D5	811-005	TM-25	AFC Filter
C81	1	200	3-1391	P288-1	PTE4P1		TM-1	AFC Filter
C82	05	200	3-95	P288-05	PTE4S5		TM-15	Hor. AFC Screen Bypass
C83	005	600	3-157	P568-005	PTE6D5	811-005	TM-25	Hor. AFC Coupling
C84	10000	500	CM35A103K	1467-01	1D3S1		1FM-11	Phase Shifter
C85	.005	600	3-157	P568-005	PTE6D5	811-005	TM-25	Hor. Osc. Grid Cap.
C86	05	400	3-1402	P488-05	PTE4S5		TM-15	Hor. Osc. Screen Bypass
C87	330	500	CM33A331K	1468-00025	5W5T3	GP2K-330	1FM-335	Differentiator Net.
C88	01	400	3-145	P488-01	PTE4S1	821-01	TM-11	Hor. Sweep Coupling
C89	680	500	CM30A681K		1W5T7	GP2K-680	1FM-37	Hor. Discharge
C90	1000	500	CM30A102K	1467-001	1W5D1	GP2L-001	1FM-21	Hor. Sweep Coupling
C91	05	400	3-1402	P488-05	PTE4S5		TM-15	Hor. Output Screen Bypass
C92	1	200	3-1391	P288-1	PTE4P1		TM-1	Hor. Output Cath. Bypass
C93	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	Bias Filter
C94	035	1000	3-1406	P1068-033				Damper Filter
C95	05	1000	3-1407	P1068-05	GT16S5		TR-15	Damper Filter
C96	220	1500	3-1474					Fixed Trimmer
C97	500	10000	3-1183			410-500		HV Filter
C98	1000		3-1394	GP1000M	1W5D1	GP2L-001	1FM-21	RF Bypass
C99	1	400	3-1404	P488-1	PTE4P1		TM-1	RF Bypass
C100	68.0		3-1392	GP680M	PTE6D6	GP2-334-0068	TM-26	RF Bypass
C101	05	600	3-1405	P568-05	PTE6S5		TM-15	Line Filter
C102	05	600	3-1405	P568-05	PTE6S5		TM-15	Line Filter
C103	3-12		3-307			557-NPO-3-12		Fixed Trimmer

* Some models use transmission line in this application.
† Not used in all models.
‡ Chassis type 7040-A1 uses .002MFD, 500 volt in this application.
§ Some models use 1000WMF in this application.

CONTROLS

ITEM No.	RATING RESIST. ANCE	RATING WATTS.	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	1-691 or	Q13-133X	T-78	Volume control, tapped at 150KΩ
B	Switch		1-692	76-1	SW-A	Attach to R1A per instructions
R2	100KΩ	½	1-653 or	Q11-128	M-49-S	Brightness control
			1-698			
R3	25KΩ	½	1-696 or	Q11-120	M-40-S	Contrast control
			1-700			
R4	1000Ω	25	1-668 or	PR-35-1000	PW-25-1000	Focus control-Wire Wound
			1-689			
R5	25Ω	2	1-663	W-25	43-25	Vert. centering control-Wire Wound
R6	25Ω	4	1-666			Horiz. centering control-Wire Wound
R7	150Ω	2	1-581 or	[illegible]	43-1500	Vert. linearity control -Wire Wound
			1-664 or			
			1-682			
R8	2 Meg	½	1-662 or	Q11-139	M-83-S	Height control
			1-672			
R9	500KΩ	½	1-661 or	Q11-133	M-58-S	Vert. hold control
			1-671			
R10	20KΩ	½	1-665 or	Q11-119	M-36-S	Horiz. drive control
			1-670			
R11	500KΩ	½	1-660 or	Q11-133	M-58-S	Sensitivity control
			1-671			

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R12	200Ω 5%	½	2-957		RF Cathode
R13	100Ω	2			Mixer Grid
R14	18KΩ	2	2-943		RF Plate
R15	12KΩ	2	2-956		RF Plate Coil Shunt
R16	12KΩ		2-958		Mixer Grid Coil Shunt
R17	1 Meg		2-1208		Mixer Grid
R18	470		RC20BF470K		Mixer Cathode-See Note 2
R19	33ΩKΩ		2-1202		Mixer Screen
R20	12KΩ	2	2-956		Osc. Grid
R21	18KΩ	2	2-943		Osc. Plate
R22	82000 5%	½	RC20BF822J		Mixer Plate Transformer Shunt
R23	47KΩ	½	RC20BF473K	BTS-47K	Mixer Plate Decoupling
R24	56000 5%	½	RC20BF562J		1st Video IF Grid
R25	68Ω	½	RC20BF680K		1st Video IF Cathode
R26	68000 5%	½	RC20BF682J	BTS-6800-5%	1st Video IF Plate Coil Shunt-See Note 1
R27	22KΩ	2	RC40BF223K	BT-2-22K	1st Video IF Decoupling
R28	22KΩ	2	RC40BF223K	BT-2-22K	1st Video IF Decoupling
R29	10KΩ	½	RC20BF223K	BTS-10K	Bias Network
R30	68000 5%	½	RC20BF682J	BTS-6800-5%	2nd Video IF Grid Coil Shunt
R31	68Ω	½	RC20BF680K		2nd Video IF Cathode
R32	3900Ω	2	RC40BF392K	BT-2-3900	2nd Video IF Decoupling

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT Part No.	IRC PART No.	IDENTIFICATION CODES
R33	39000 5%	½	RC20BF392J		3rd Video IF Grid
R34	100Ω	2	RC30BF100K		3rd Video IF Cathode
R35	3900Ω	3	RC40BF392K	BT-3-3900	3rd Video IF Decoupling
R36A	2500Ω	10			Voltage Dropping-Wire Wound
B	700Ω	7	2-1759		Bleeder-Wire Wound
C	62Ω	2			Voltage Divider-Wire Wound
R37	120Ω	½	RC40BF121K	BW-1-120	Voltage Divider
R38	39KΩ 5%	½	RC20BF393K	BTS-39K-5%	Video Det. Coil Shunt
R39	4700Ω	½	RC20BF472K	BTS-4700	Video Det. Diode Load
R40	150Ω	½	RC20BF150K	BW-½-15	Voltage Divider
R41	220Ω	½	RC20BF220K	BW-½-22	Voltage Divider
R42	100KΩ	2	RC40BF104K	BT-2-100K	Video Amp. Screen
R43	100KΩ	3	RC40BF104K	BT-3-100K	Video Amp. Screen
R44	36000 5%	2	RC40BF362J		Video Amp. Plate
R45	3300Ω	2	RC40BF332K	BT-2-3300	Low Pass Filter
R46	10KΩ	½	RC20BF103K	BTS-10K	DC Rest. Diode Load
R47	150KΩ	½	RC20BF154K	BTS-150K	Voltage Divider
R48	470KΩ	½	RC20BF474K	BTS-470K	Picture Tube Grid
R49	1 Meg. 20%	½	RC20BF105M	BTS-1 Meg.	Bias Network
R50	68Ω	½	RC20BF680K		Sound IF Cathode
R51	100KΩ	2	RC20BF104K	BTS-100K	Sound IF Grid
R52	33KΩ	1	RC30BF333K		Sound IF Screen
R53	1000Ω	2	RC40BF102K	BTS-1000	Sound IF Decoupling
R54	100KΩ	2	RC20BF104K	BTS-100K	Sound IF Grid Filter
R55	56KΩ	2	RC20BF563K	BTS-56K	Limiter Grid
R56	68Ω	½	RC30BF680K		Limiter Cathode
R57	47KΩ	2	RC40BF473		Limiter Screen
R58	1000Ω	2	RC20BF102K	BTS-1000	Limiter Decoupling
R59	10KΩ	½	RC20BF103K	BTS-10K	Voltage Divider
R60	100KΩ	2	RC20BF104K	BTS-100K	Disc. Diode Load
R61	100KΩ	2	RC30BF104K	BTS-100K	Disc. Diode Load
R62	27KΩ	2	RC30BF273K	BTS-27K	De-emphasis
R63	330Ω	2	RC20BF332K	BTS-3300	Tuning Indicator Grid
R64	22KΩ	2	RC20BF223K	BTS-22K	Tone Compensation
R65	470KΩ	½	RC20BF474K	BTS-470K	AF Grid
R66	1 Meg.	½	RC20BF105K	BTS-1 Meg.	AF Screen
R67	100KΩ	½	RC20BF104K	BTS-100K	AF Plate
R68	470KΩ	½	RC20BF474K	BTS-470K	Bias Network
R69	100KΩ	1	RC20BF104K	BTS-100K	Voltage Divider
R70	100KΩ	1	RC20BF104K	BTS-100K	Output Grid
R71	2200Ω	2	RC40BF222K	BT-2-2200	Decoupling
R72	2200Ω	2	RC40BF222K	BT-2-2200	Decoupling
R73	220KΩ	½	RC20BF224K	BTS-220K	Voltage Divider
R74	470KΩ	½	RC20BF474K	BTS-470K	Voltage Divider
R75	8200Ω	2	RC40BF822K	BT-2-8200	Voltage Dropping
R76	8200Ω	2	RC40BF822K	BT-2-8200	Voltage Dropping
R77	39KΩ	½	RC20BF393K	BTS-39K	1st Sync. Clipper Grid
R78	3300Ω	2	RC20BF332K	BTS-3300	1st Sync. Clipper Plate
R79	33KΩ	2	RC40BF333K	BT-2-33K	1st Sync. Clipper Plate Decoupling
R80	68000	2	RC40BF682K	BTS-6800	Voltage Divider
R81	1.2 Meg.	½	RC20BF125K	BTS-1.2 Meg.	2nd Sync. Clipper Grid
R82	10KΩ	½	RC20BF103K	BTS-10K	2nd Sync. Clipper Plate
R83	100KΩ	1	RC30BF104K	BTA-100K	2nd Sync. Clipper Screen
R84	22KΩ	½	RC20BF223K	BTS-22K	Voltage Divider
R85	1.2 Meg.	½	RC20BF125K	BTS-1.2 Meg.	Vert. Buffer Grid
R86	6800Ω	½	RC20BF682K	BTS-6800	Vert. Buffer Cathode-See Note 2
R87	10KΩ	½	RC20BF103K	BTS-10K	Integrator
R88	10KΩ	½	RC20BF103K	BTS-10K	Integrator
R89	10KΩ	½	RC20BF103K	BTS-10K	Integrator
R90	750KΩ 5%	½			Vert. Osc. Grid -See Note 3
R91	470KΩ	½	RC20BF474K	BTS-470K	Vert. Osc. Plate
R92	12KΩ	½	RC20BF123K	BTS-12K	Vert. Osc. Transformer Shunt
R93	3300Ω	2	RC30BF332K	BTS-3300	Vert. Peaking-See Notes 4 and 7
R94	2.2 Meg.	½	RC20BF225K	BTS-2.2 Meg.	Vert. Amp. Grid
R95	4700Ω	1	RC20BF472K	BTS-4700	Vert. Peaking-See Note 2
R96	820Ω	1	RC30BF821K	BTA-820	Vert. Amp. Cathode
R97	10KΩ	2	RC40BF103K	BT-2-10K	Decoupling
R98	10KΩ	2	RC40BF103K	BT-2-10K	Decoupling
R99	330Ω	1	RC30BF331K	BTA-330	Voltage Divider
R100	470KΩ	½	RC20BF474K	BTS-470K	Horiz. Sync. Disc. Load
R101	470KΩ	½	RC20BF474K	BTS-470K	Horiz. Sync. Disc. Load
R102	470KΩ	½	RC20BF474K	BTS-470K	Horiz. AFC Filter Network
R103	470Ω	½	RC20BF471K	BTS-470	Horiz. AFC Grid
R104	10Ω	2	RC20BF100K		Horiz. AFC Cathode
R105	22KΩ	2	RC40BF223K	BT-2-22K	Horiz. AFC Plate
R106	47KΩ	2	RC40BF473K	BT-2-47K	Horiz. AFC Screen
R107	27KΩ	1	RC30BF273K	BTA-27K	Voltage Divider
R108	47KΩ	½	RC20BF473K	BTS-47K	Horiz. Osc. Grid
R109	5000Ω 5%	10	2-192 or 2-932		Horiz. Osc. Plate-Wire Wound
R110	10KΩ	1	RC30BF103K	BTA-10K	Horiz. Osc. Screen
R111	6800Ω	½	RC20BF682K	BTS-6800	Differentiator
R112	220KΩ	½	RC20BF224K	BTS-220K	Horiz. Discharge Grid
R113	680KΩ	½	RC20BF684K	BTS-680K	Horiz. Discharge Plate
R114	10KΩ	½	RC20BF103K	BTS-10K	Horiz. Peaking
R115	100Ω	½	RC20BF101K		Parasitic Supp.
R116	470KΩ	½	RC30BF474K	BTS-470K	Horiz. Output Grid
R117	100Ω	5	2-944 or 2-962	AB-500	Horiz. Output Cathode-Wire Wound
R118	27KΩ	2	RC40BF273K	BT-2-27K	Horiz. Output Screen
R119	22KΩ	2	RC40BF223K	BT-2-22K	Horiz. Output Screen
R120	60000Ω 5%	25	2-1777		Damper Filter-Wire Wound, Tapped at 5000Ω and 4000Ω
R121	5.6Ω	½			HV Rect. Filament-Wire Wound, See Note 5
R122	220KΩ	1			HV Filter-See Note 6
R123	2.5Ω	1	2-1754	BW-1-2.2	Time Delay Rect. Filament-Wire Wound
R124A	200Ω	11.5	2-1760	DG-200	Voltage Divider-Wire Wound
B	250Ω	7.7		AB-250	Focus Coil Shunt-Wire Wound
R125	1250Ω	24.1	2-1761		Filter-Wire Wound
R126	100KΩ	½	RC30BF104K	BTA-100K	Bleeder
R127	190KΩ	½	RC30BF104K	BTA-100K	Bleeder
R128	1800Ω	½	RC20BF182K	BTS-1800	Vert. Peaking-See Note 2 and 7
R129	1 Meg.	½	RC20BF105K	BTS-1 Meg.	Tuning Ind. Network

Note 1. Some models use 10KΩ resistor in this application.
Note 2. Not used in all models.
Note 3. Some models use 470KΩ resistor in this application.
Note 4. Some models use 3900Ω resistor in this application.
Note 5. Some models use 5.6Ω resistor in this application.
Note 6. Some models use 680KΩ, 1 watt resistor in this application.
Note 7. May be shorted out at factory or left out of set.

SPEAKER

ITEM No.	RATINGS FIELD. RES.	RATINGS V. C. IMP.	REPLACEMENT DATA DUMONT PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	PM	3.6Ω	53D-12982-101 Ⓢ	ST-119 Ⓢ MOD. P10-T	10A31	Ⓢ Replace output transformer to match 6-8Ω voice coil.
B	CONE DIA.	V. C. DIA.	53D-12540-101 Ⓖ			Ⓤ Used in console models. Ⓖ Used in table models.
SP2A	9 1/2"	3/4"				

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC at 2.7A	780VCT & Tap at 50VAC at .009 ADC	5VAC at 6A SEC. 4 6.3VAC at 9.7A	5VAC at 2A	20D-12404 or 20D-12856			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	280Ω	SEC. 1 580Ω SEC. 2 700Ω	20D-4901-3				Vert. Block Osc. Trans.
T3	405Ω Tap at 165Ω	SEC. 1 10.6Ω Tap Ⓐ .6Ω SEC. 2 06Ω	20-375	A-8128	HVO-3	TFB-3	Hor. Output Trans.
T4	660Ω	8.3Ω	20-380	A-8115	A-3035	T80-1	Vert. Output Trans.
T5A	140Ω		21-388	DY-1	MD-1		Hor. Deflection Coil
B	635Ω						Vert. Deflection Coil
T6	550Ω		21C-12586-101				Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA DUMONT PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	4.7KΩ	3.6Ω	420Ω	.4Ω	Part of 53D-12982-101	A-3825	A-3019	RO-9

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (@ CURRENT 1000 ωm)	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.320ADC	70Ω	5 Henries	21C-12432	C-2326 Ⓒ	C-2996 Ⓒ	TR-3300 Ⓒ	Ⓒ Drill new mounting holes.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DUMONT PART No.	MEISSNER PART No.	NOTES
L2	Ant. Coil	0Ω		21A-12453		
L3	RF End Inductor	0Ω		21A-12080		Part of inductuner 21-357.
L4	RF Plate	0Ω				
L5	Mixer End Inductor	0Ω		21A-12081		Part of inductuner 21-357
L6	Mixer Grid					
L7	Osc. End Inductor	0Ω		21A-12082		Part of inductuner 21-357.
L8	Osc. Coil	0Ω				
L9	Osc. Shunt	0Ω		21A-11281		
L10	1st Video IF	.7Ω		21A-13089-101		
L11	RF Choke	.1Ω		21A-12411		
L12	1st Video IF Coupling	.1Ω		21A-13089-102		
L13	2nd Video IF	.7Ω		21A-13090-101		
L14	2nd Video IF Coupling			21B-12412		Not used in all models.
L15	2nd Video IF	.1Ω		21A-13089-103		
L16	3rd Video IF	.7Ω		21A-13090-102		
L17	21.5MC Sound Trap	0Ω		21A-13087-102		
L18	Adjacent Channel Sound Trap	0Ω		21A-13087-101		
L19	3rd Video IF	.7Ω		21A-13088-101		
L20	4th Video IF	.7Ω		21A-13090-103		
L21	4th Video IF Coupling			21B-12410		Not used in all models.
L22	4th Video IF	.7Ω		21A-13090-104		
L23	Peaking	10Ω		21A-13413-3		
L24	Peaking	7Ω		21B-12413-2		
L25	4.5MC Trap	1.1Ω		21A-13098-101		
L26	Peaking	6.2Ω		21B-12413-1		
L27	1st Sound IF	.1Ω	.1Ω	20C-12478		
L28	2nd Sound IF	.1Ω	.1Ω	20C-12478		
L29	Disc. Trans.	.5Ω	.1Ω	20C-12477		
L30	Hor. Osc. Trans.	65Ω	67Ω	20C-12572-1		
L31	Width Cont.			21A-13230-101		
L32	Horiz. Linearity			21A-13307		
L33	Band Pass Coil	0Ω				

TV PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA DUMONT PART No.		NOTES
M1	Bayonet	6-8	.25	Blue	39-4		Type #44 (TV Dial)

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M2	RF Tuner	7033-A2	
M3	Fuse	11-11	4 A., 250V
M4	Fuse	11001100	.25A, 250V
M5	Switch	5-12	Vert. Positioning
M6	Band switch	5B-12449	
M7	Relay	5-241	Armature, SPST
M8	Inductuner	21-357	
	Cabinet	31W-12898	Chatham
	Cabinet	31W-12707	Stratford
	Cabinet	31W-13288	Savoy
	Safety Glass	15B-12900-1	
	Dial Assembly	15B-1256A-101	Main
	Dial Assembly	15B-12565-101	Vernier

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA DUMONT PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V29	AM RF Amp.	6BA6	6BA6	7BK	
V30	AM Converter	6BE6	6BE6	7CH	
V31	AM IF Amp.	6BA6	6BA6	7BK	"Savoy" model only.
V32	DET.-AVC AF	6SQ7GT	6SQ7GT	8Q	
V33	Power Output	6V6GT	6V6GT	7AC	
V34	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C104A	30	450	3-1440	AF862J4A	UP9DJ969		EL-424 ♦	▲ Filter
B	30	450					UT-10	■ Filter
C	20	450						▲ Filter
D	20	25						Output Cath. Bypass
C105	.002	600	3-1443	P688-002	PTE6D2	GP2M-002	TM-22	Ant. Coupling
C106	330		3-1439	GP330M	5W5T3	GP2K-330	1FM-335	RF Coupling
C107	100		3-1438	GP100K	5R5T1	GP1K-100	MS-31	Fixed Trimmer
C108	.05	200	3-95	P288-05	PTE4S5		TM-15	AVC Filter
C109	47		3-1273	GP47K	5W5Q5	GP1K-47	1FM-45	Osc. Grid Cap.
C110	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	Decoupling
C111	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	Decoupling
C112	330		3-1439	GP330M	5W5T3	GP2K-330	1FM-335	Diode RF Filter
C113	330		3-1439	GP330M	5W5T3	GP2K-330	1FM-335	Diode RF Filter
C114	.1	200	3-1391	P288-1	PTE4P1		TM-1	Tone Compensation
C115	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C116	.01	600	3-1256	P688-01	PTE6S1	821-01	TM-11	Audio Coupling
C117	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	Tone Compensation #
C118	300		3-1439	GP300M	5W5T3	GP2K-300	1FM-33	Output Grid Bypass #
C119	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	Output Plate Bypass
C120	.005	600	3-157	P688-005	PTE6D5	811-005	TM-25	IF Plate Decoupling
C121	.05	600	3-1405	P688-05	PTE6S5		TM-15	Line Filter
C122	.05	600	3-1405	P688-05	PTE6S5		TM-15	Line Filter

Not used in all models.
♦ Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING. RESIST-ANCE	RATING. WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R130	500KΩ	½	1-675	QI9-133X	T-90	Volume control, tapped at 250KΩ
R131	1 Meg.	½	1-707	QI3-137	M-63-Z	Tone control

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	IDENTIFICATION CODES
R132	470KΩ	½	RC20BF474M	BTS-470K	AM RF Grid
R133	10 Meg.	½	RC20BF106M	BTS-10 Meg.	AM Conv. Grid
R134	22KΩ	½	RC20BF223M	BTS-22K	AM Osc. Grid
R135	1000Ω	½	RC20BF102M	BTS-1000	Decoupling
R136	1500Ω	½	RC20BF152M	BTS-1500	Decoupling
R137	18KΩ	2	RC40BF183K	BT-2-18K	Screen Dropping
R138	18KΩ	2	RC40BF183K	BT-2-18K	Screen Dr opping
R139	1 Meg.	½	RC20BF105M	BTS-1 Meg.	AVC Network
R140	3900Ω	½	RC20BF392K	BTS-3900	Tone Compensation
R141	27KΩ	½	RC20BF273K	BTS-27K	Tone Compensation
R142	270KΩ	½	RC20BF274K	BTS-270K	AVC Network
R143	47KΩ	½	RC20BF473M	BTS-47K	Diode Filter
R144	10 Meg.	½	RC20BF106M	BTS-10 Meg.	AF Grid
R145	270KΩ	½	RC20BF274K	BTS-270K	AF Plate
R146	470KΩ	½	RC20BF474K	BTS-470K	Output Grid
R147	220Ω	2	RC40BF221K	BW-2-220	Output Cathode
R148	1000Ω	2	RC40BF102K	BW-2-1000	Filter
R149	750Ω	10	2-1732	AB-750	Filter-Wire Wound

RADIO **PARTS LIST AND DESCRIPTIONS (Continued)**

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T8	117VAC at .62A	630VCT .080ADC	5VAC at 2A	6.3VAC at 1.9A	20D-12926	P-6012 ②	P-2952 ②	PH-70

② Add series resistor to reduce plate voltage.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	DUMONT PART No.	MEISSNER PART No.	
L34	Loop Ant.	1Ω		32B-13006-101		4 turns of wire in cabinet.
L35	Ant. Coil	9.5Ω		21A-12919		
L36	RF Coil	46Ω	10.5Ω	21B-12921	14-1072	
L37	Osc. Coil	6Ω		21A-12920	14-1073	
L38	1st IF Trans.	16Ω	16Ω	20C-12922-1		
L39	2nd IF Trans.	16Ω	16Ω	20C-12922-2	16-6667	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					DUMONT PART No.		
M9	Bayonet	6-8	.25	Blue	39-4		Type #44 (AM Dial)
M10	Bayonet	120					120V., 6W (Phono Compartment)

PHONO CARTRIDGE and NEEDLE

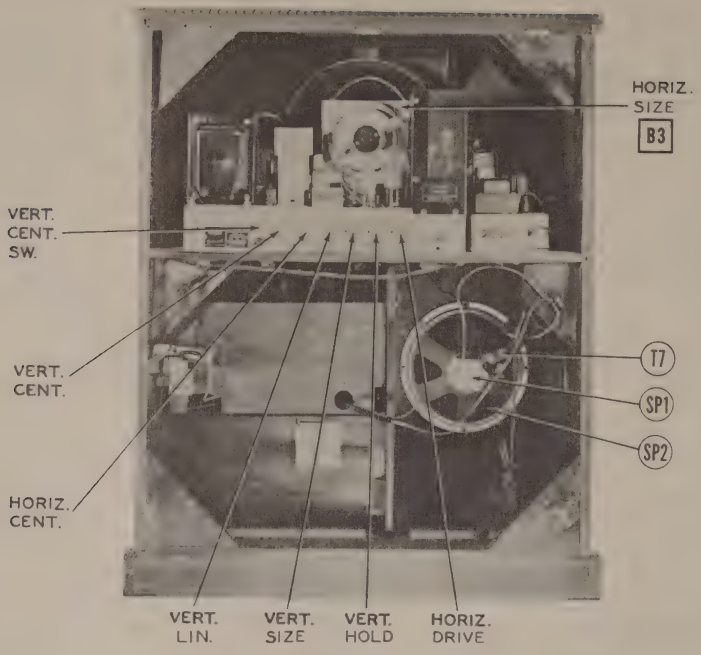
ITEM No.	REPLACEMENT DATA				REMARKS
	DUMONT PART No.	ASTATIC PART No.		SHURE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M11	V-45				

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M12	Switch		On-Off, Speaker Transfer
M13	Tuning Cap.	3C-12714	Alternate Part # 3C-12987 (21-387MMF) (21-387MMF) (34-212MMF)
M14	Switch		Phono Compartment Light
	Dial Assembly	15B-12984-101	

DISASSEMBLY INSTRUCTIONS

1. Loosen screw holding TV tuning knob. Remove knob.
2. Remove four push-on type control knobs.
3. Remove seven screws holding rear cover. Open cover.
4. Disconnect speaker lead plug connecting TV chassis with AM chassis.
5. Remove tuning indicator from clamp.
6. Remove four 7/16" hex head bolts holding TV chassis. Remove chassis.
7. Loosen screw holding AM tuning knob. Remove knob.
8. Remove three push-on type AM control knobs.
9. Remove phono power plug from AM chassis.
10. Disconnect speaker plug.
11. Loosen two screws holding loop antenna leads. Remove leads.
12. Remove two 7/16" hex head bolts holding AM chassis. Remove chassis.
13. Remove four 11/32" hex nuts holding speaker. Remove speaker.



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal frequency slug (B1) to the mid-position between the two points where the picture falls into synchronism, not out of synchronism.

Turn the horizontal position control until the right side of the raster is visible.

Turn up the brightness, and reduce the contrast until the normally blanked edge of the raster is visable.

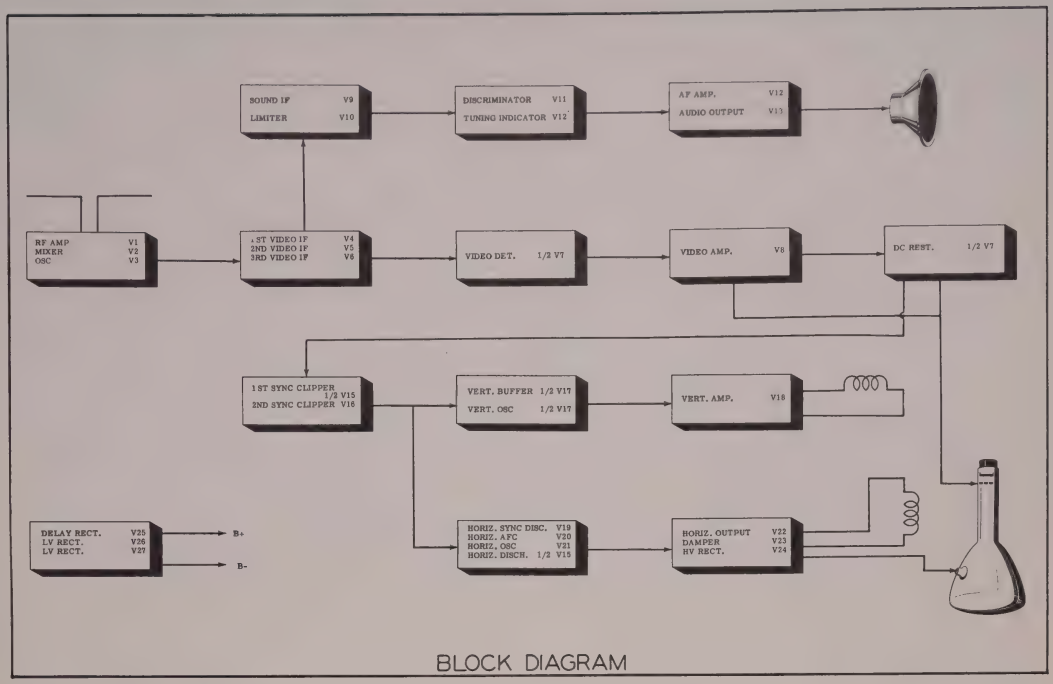
There should be a vertical gray strip about 1/4 inch wide at the right edge of the raster adjacent to the picture. Still further to the right there may be a darker strip. If the darker strip is visable, and is over 3/16 inch wide, or if the lighter strip is not present, the phasing control (B2) is not properly adjusted. B2 should be adjusted so the left edge of the darker strip is at the extreme right edge of the raster, (almost to the point of disappearing).

HORIZONTAL LINEARITY ADJUSTMENTS

The horizontal drive control has the effect of spreading or compressing the right side of the picture. This control is pre-set at the factory and normally will not require adjustment in the field.

Adjust the horizontal size slug (B3) until the picture fills the mask horizontally.

Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right.



BLOCK DIAGRAM

EICOR
MODEL 1000

FIGURE 1

EICOR
MODEL 1000

GENERAL INFORMATION

The Eicor model 1000 is designed to magnetically record on a standard 1/4-inch wide tape (two tracks instead of one), which doubles the playing time with no loss of frequency response or quality. A recording will last indefinitely, since the playback process has no effect on the tape; or a new recording may be made on an old reel, since, in the recording process, any previous recording is erased. One motor is used, which, through the action of the control mechanism, serves as a drive to the capstan assembly and takeup assembly, and for the rewind drum also. The rewind speed is greater, due to the ratio of pulley used. Rewind time for 600-foot reel takes only 2-1/2 minutes. For a 1200-foot reel, the time required is four minutes.

Power Supply: 115 Volts AC, 60 Cycles.

Manufactured by
Eicor, Inc.
1501 West Congress Street - Chicago, Illinois

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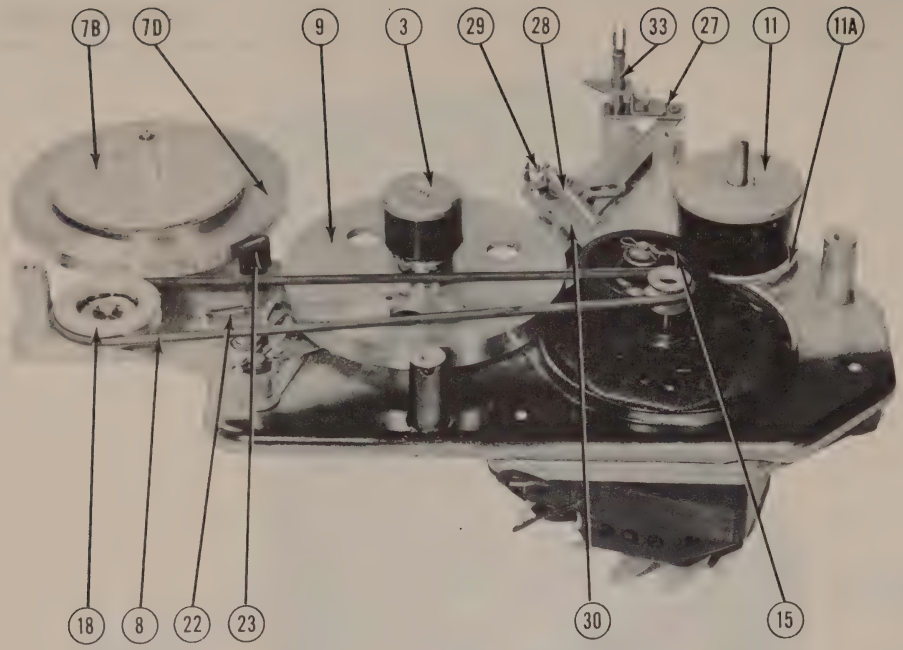


Figure No. 2

OPERATING INSTRUCTIONS

Threading of Tape -

1. Place a full reel of tape on the rewind drum (11), making sure that the reel is locked in place by locking pin located near center post of the drum, and that the tape feeds from the bottom of the reel (as illustrated in Figure 1).

2. Pull the tape across the face of the recording head (M4), around the back of the capstan (9), and attach to right-hand reel. The black side of the tape must face the recording head (M4), otherwise the recording will be made at a very low sound level and the playback will be almost inaudible. Inasmuch as all tapes do not have the black and white side, the dull metallic-coated side will always face the recording head.

Recording -

1. Insert the line cord plug into a convenient wall receptacle of the proper rating.

2. Turn the "Volume Control" knob to the right until its arrow points toward the "Volume indicator".

3. Plug the microphone into the "Input" socket labeled "Microphone".

4. Turn the "Record-Listen" control to the "Erase-Record" position. In this position, the old recording will be erased and a new recording made in the same process. Hold the microphone about 10 inches from your lips, to avoid overemphasis of breath sounds, and talk into the mike in a natural tone.

5. Adjust the "Volume Control" until the "Volume Indicator" flickers on high peaks only.

6. Turn the "Rewind-Off-Forward" control to the "Forward" position. A recording may now be made.

When your voice enters the microphone, it is changed into electrical impulses which pass through a magnet in the recording head (M4). As the head contacts the metallic coating on the tape, it causes the coating to be magnetized in certain patterns by your voice. When you play back the tape to listen, the invisible magnetic patterns are changed back into electrical impulses and are delivered through the speaker as the very same sounds you put into the microphone.

7. To stop the recorder, turn the "Rewind-Off Forward" control to the "Off" position and the "Volume Control" to the "Off" position.

To Rewind -

1. With the "Volume Control" turned on, turn the "Record-Listen" control to "Listen".

2. Turn the "Rewind-Forward" control to the "Rewind" position. As the tape is rewinding, you will hear your recording played backward at a high rate of speed. When this sound stops, you have come to the start of your recording. To rewind a complete reel of tape, remove the tape from the capstan (9) so the tape will rewind directly across the recorder to the left-hand reel; it will just touch the bottom of the recording head. This method is faster when rewinding an entire reel; it eliminates the accumulation of deposit on the recording head and capstan, and reduces recording head wear.

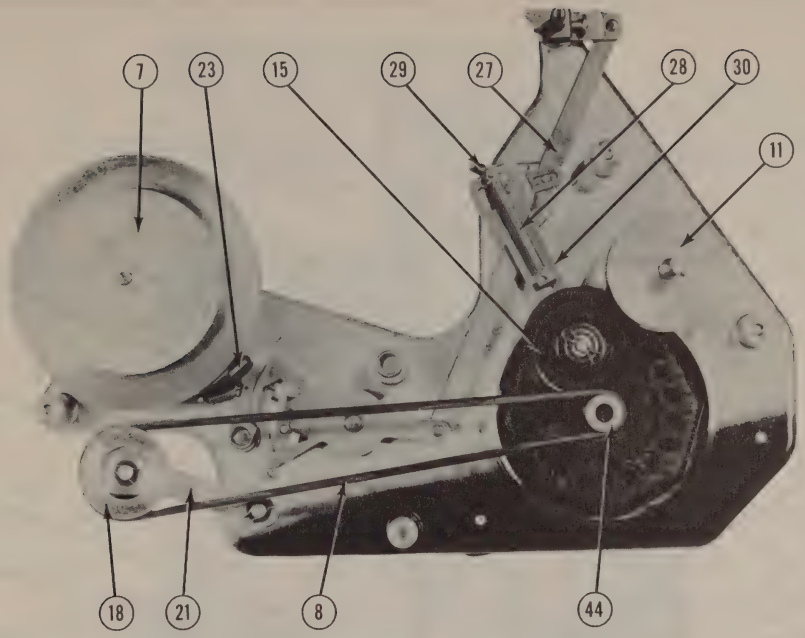


Figure No. 3

To Play a Recording -

1. Turn the "Volume-Control" on.
2. Turn the "Record-Listen" control to "Listen".
3. Turn the "Rewind-Forward" control to "Forward".
4. Adjust the volume to suit.

Two-Track Recording on Same Tape -

The recording head is constructed so as to record on half of the recording tape. This, as a result, doubles the playing time of a reel. After a full reel has been recorded, remove the empty reel from the left post (rewind drum) (11), then remove the full reel from the right post (7B), turn it upside down and place it on the rewind drum (11). Place the empty reel on the takeup post (7B). Be sure the reels are located on the reel post pins. These tiny pins must locate in one of the three slots in the center of the reel so the reels will turn when the recorder is operating. Thread the tape as described in "Threading of Tape".

To Repair or Splice Tape -

In case the tape is broken accidentally, or it is desired to edit the recording, a splice may be made with Scotch tape. Do not use medical adhesive tape as the adhesive material is not suited for this purpose. The Scotch tape should be applied to the reverse, or uncoated, side of the recording tape. The edges of the splice should be trimmed with a small pair of scissors, or a knife.

MECHANICAL DRIVE ASSEMBLY

1. With the control shaft (33) in the "Off" position, the idler wheel should be in a neutral position; that is, there should be a clearance of 1/32" $\pm$ 1/64" between the motor shaft and the ideal wheel (15).

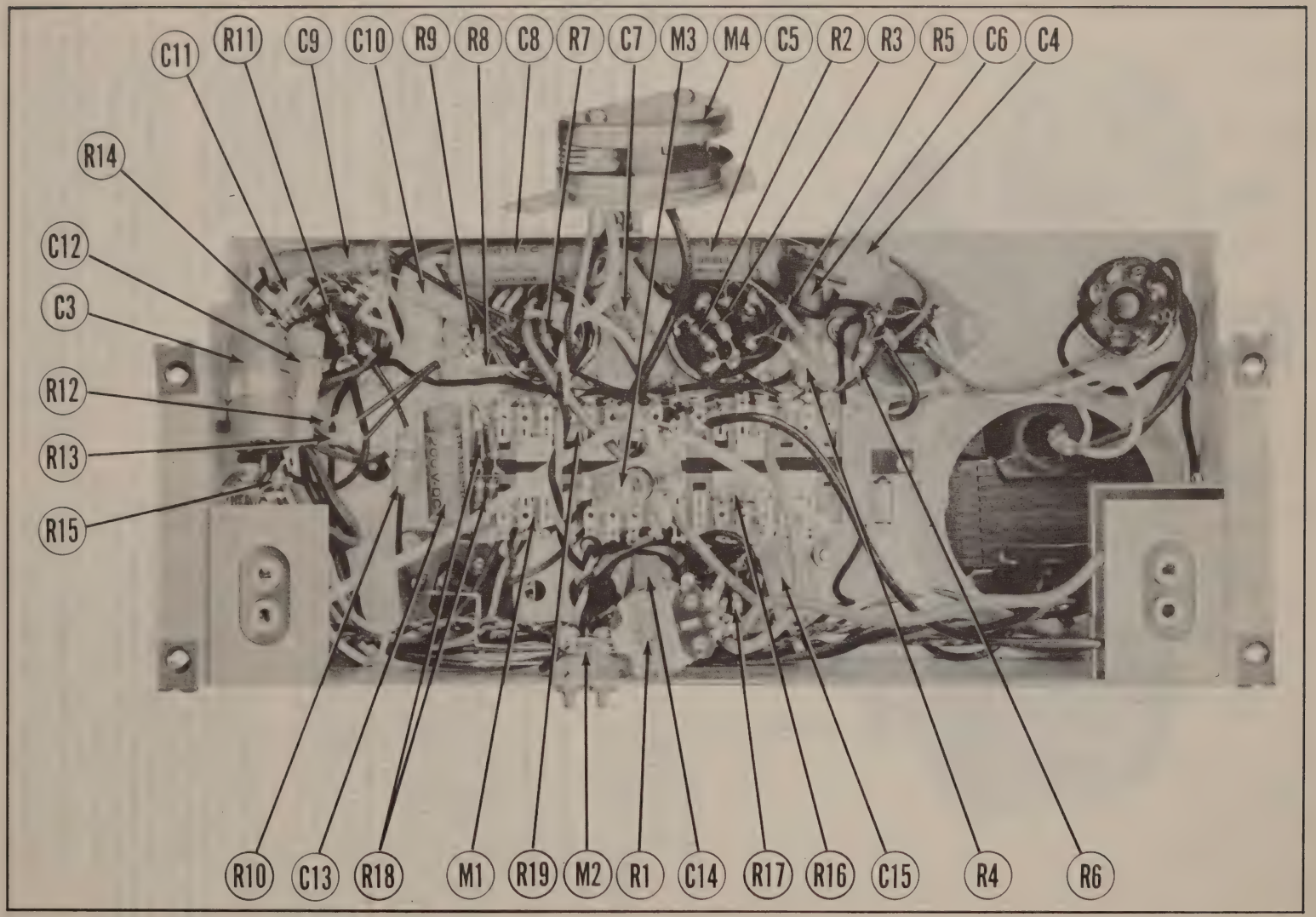
2. With the control shaft (33) in the "Rewind" position, the idler wheel (15) is pivoted against the rewind drum (11) and the motor shaft. This accounts for the fast rewind speed. Make a check, by turning the rewind drum (11) counterclockwise, to see if these parts contact each other properly. The idler wheel should turn the motor shaft. If this does not occur, check for binding parts, oil on the friction surfaces, or looseness of springs (28 and 29).

3. When the control shaft is turned to "Forward" position, the idler is pivoted against the capstan (9), and the motor shaft and the "O" ring belt (8), which is driven by the motor belt pulley (44), is pivoted against the rim of the takeup drum (7D):

(a) The capstan provides constant tape speed during a record or listen operation. As the tape moves past the recording head (M4), it moves through a magnetic field which acts on this coating to produce a recording in the form of the different amounts of magnetization. Therefore, the speed of the tape must be constant so as to reproduce the same sounds when playing back the tape to listen!

(b) The takeup drum, when contacted by the "O" ring belt, winds the tape on the right-hand reel when recording or playing back.

4. The top of the motor belt pulley (44), when adjusted properly, should be 5/64" above the top of the posts which secure the mechanism to the top plate. To adjust the pulley, loosen the two set screws (43), position the pulley and tighten the screws.


C11
R11
C9
C10
R9
R8
C8
R7
C7
M3
M4
C5
R2
R3
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C6
C4
R14
C12
C3
R12
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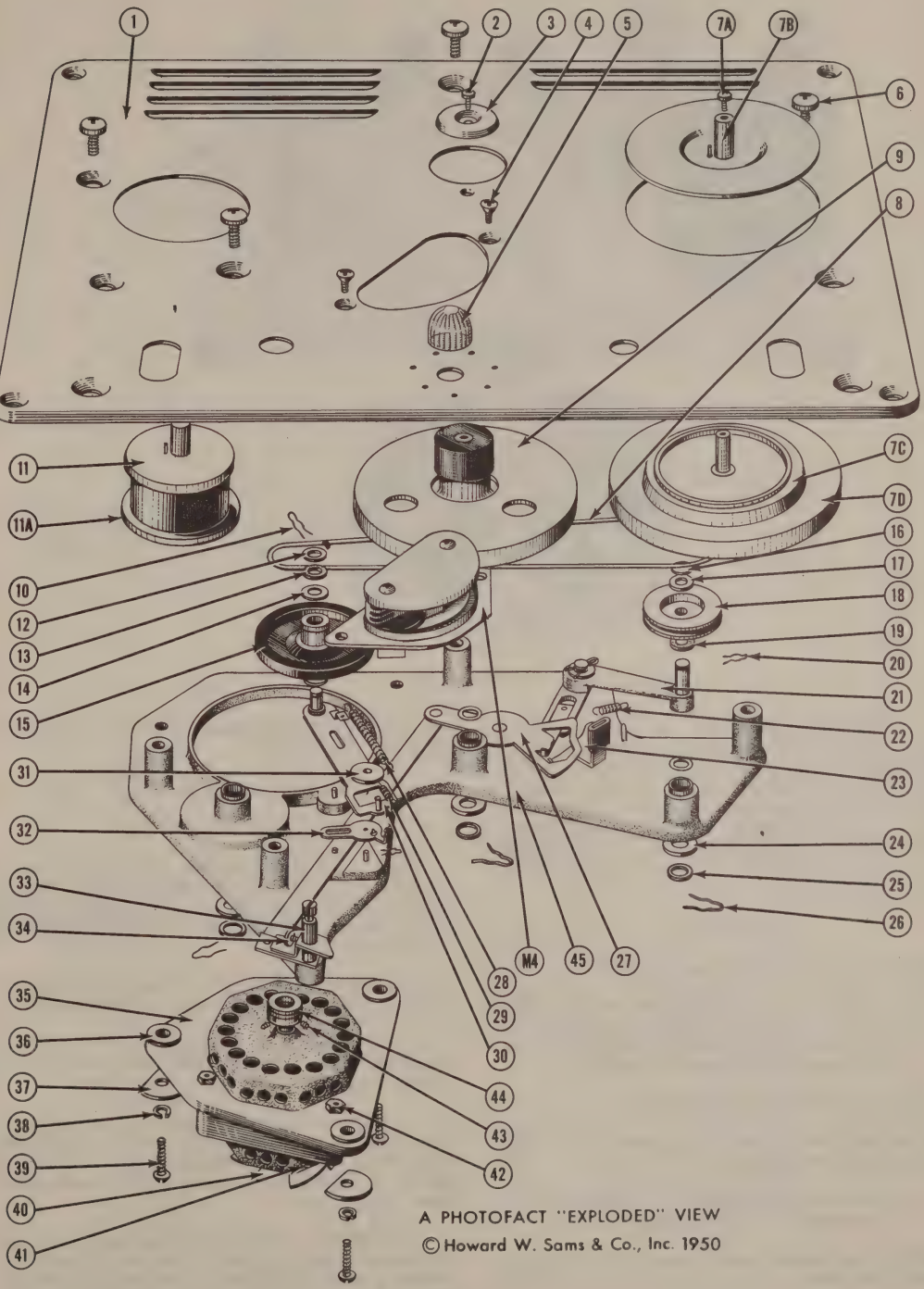
R16
C15
R4
R6



A PHOTOFACT "EXPLODED" VIEW

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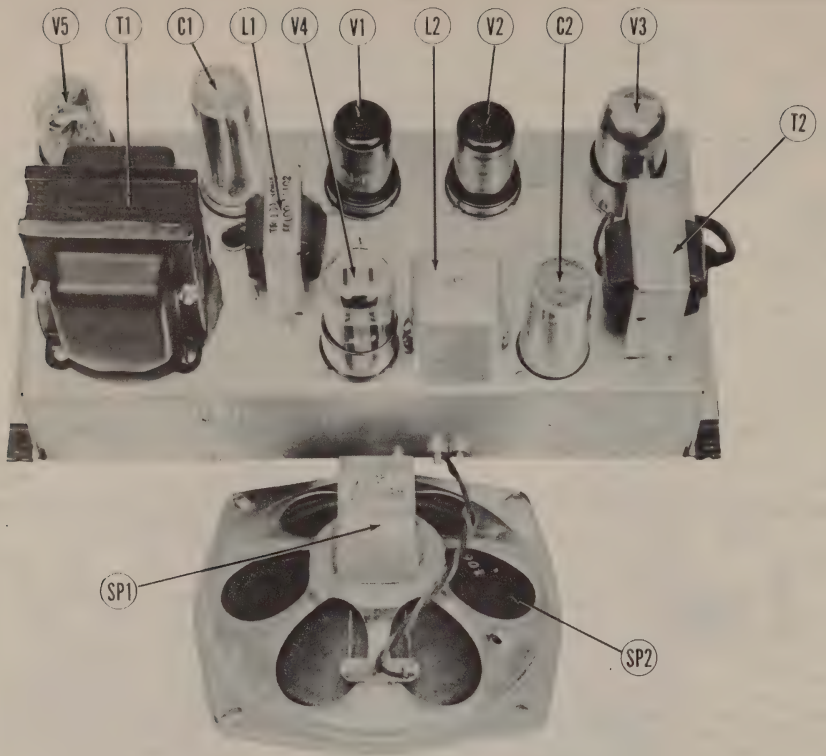


Figure No. 5

5. When the control shaft is in the "Rewind" position, there should be at least 1/32" clearance between the rubber on the brake (23) and the takeup drum. With the motor running, move the control shaft slowly from "Rewind" to "Off". Meanwhile, rotate the takeup drum (7) manually. The brake should contact the takeup drum before the rewind stops rotating. Bend the brake arm (23) to meet these requirements.

TROUBLES

Takeup Drum and Capstan Irregular or "Wow" -

(a) Grease or oil on the rubber surface of the idler wheel (15) motor shaft, capstan (9), "O" belt (8), and takeup drum (7D). Clean these parts with carbon tetrachloride.

(b) Motor belt pulley (44) loose.

Tape Overruns When Control Is Turned From "Rewind" to "Off" Position -

(a) Brake (23) not adjusted properly (see "Mechanical Drive Assembly" - 5).

Tape Will Not Rewind When Control Is Turned to "Rewind" position -

(a) Springs (28 and 29) loose.

(b) Set screw (34) loose.

Tape Will Not Wind on Takeup Drum When Control Is Turned to "Forward" -

(a) Springs (28 and 29) loose.

LUBRICATION

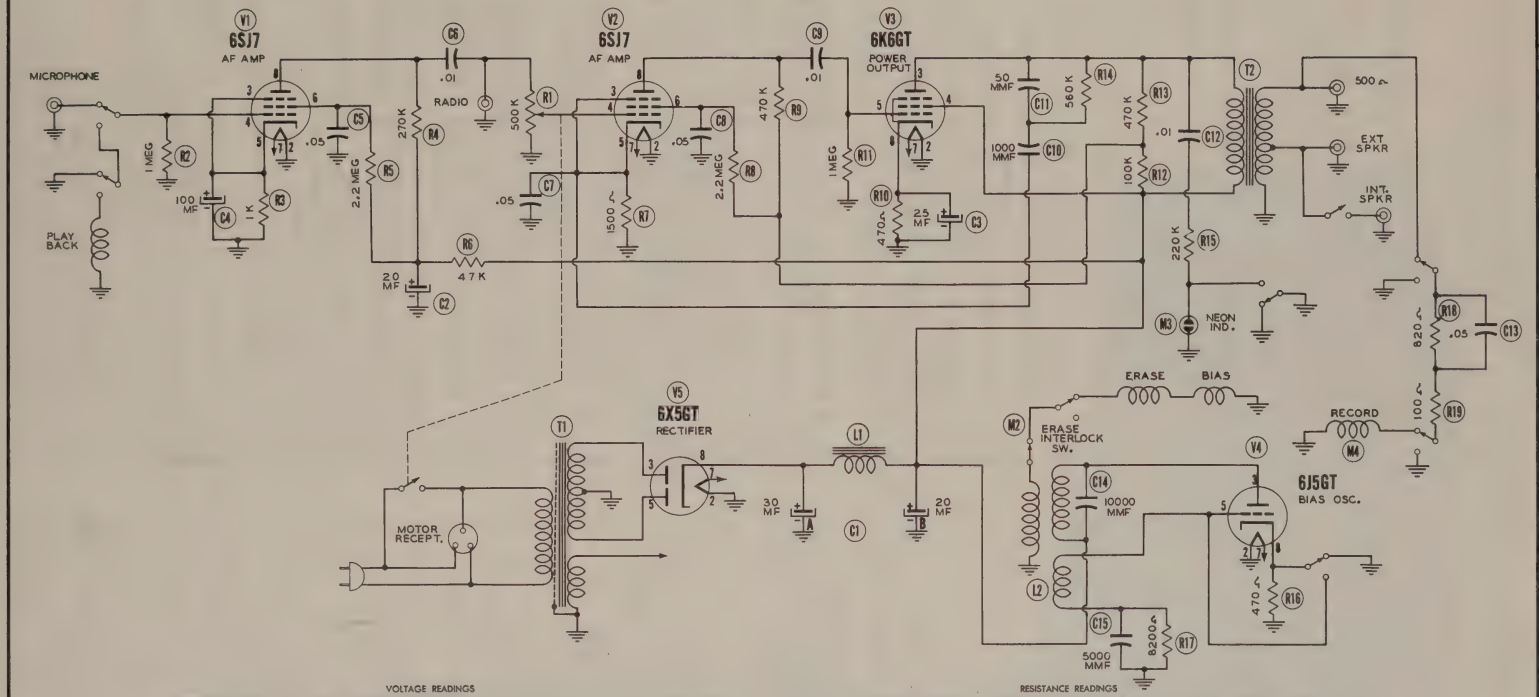
The mechanism has been lubricated at time of manufacture and should not have to be lubricated for a long period of time. However, due to extreme usage or high operating temperature, the mechanism should be lubricated as follows:

1. Mechanical linkages should be lubricated lightly at points of friction with Sta-Put No. 18-H.

2. The shafts of rotating parts, when replaced, should be wiped clean and oiled lightly with Kensington No. 9 Spindle Oil. Use two or three drops.

3. When lubricating the felt washers on the takeup and rewind drum, use Sta-Put Oil No. 360. Saturate the felt washers and then remove as much of the oil as possible by pressing a cloth, or absorbent paper, against them.

CAUTION: Avoid overlubrication as this may cause unsatisfactory results. Do not allow oil or grease to come in contact with the "O" belt (8), rewind drum (11), takeup drum (7D), capstan (9), idler pulley (15), or the motor shaft. If oil or grease should come in contact with any of these parts, clean with carbon tetrachloride.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0V	0V	.7VDC	0V	.7VDC	32VDC	6.3VAC	105VDC
V 2	6SJ7	0V	0V	.7VDC	0V	.7VDC	17.5VDC	6.3VAC	35VDC
V 3	6K6GT	0V	0V	260VDC	280VDC	0V	260VDC	6.3VAC	17.5VDC
V 4	6J5GT	0V	0V	260VDC	265VDC	§-32VDC	-32VDC	6.3VAC	0V
V 5	6X5GT	0V	0V	260VAC	0V	260VAC	0V	6.3VAC	300VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0Ω	0Ω	1200Ω	250Ω	1200Ω	†2.2Meg.	.5Ω	†300KΩ
V 2	6SJ7	0Ω	0Ω	1.5KΩ	1000Ω	1.5KΩ	†2.3Meg.	.5Ω	†580KΩ
V 3	6K6GT	0Ω	0Ω	†950Ω	†470Ω	900KΩ	580KΩ	.5Ω	.5Ω
V 4	6J5GT	0Ω	0Ω	†470Ω	†470Ω	8KΩ	3KΩ	.5Ω	0Ω
V 5	6X5GT	Inf.	0Ω	220Ω	Inf.	270Ω	Inf.	.5Ω	170KΩ

Note: All measurements taken in play back position except V4.
§ Taken with vacuum tube voltmeter.
† Measured from pin 8 of V5

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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EICOR
MODEL 1000

PARTS LIST

MECHANICAL

Ref. No.	Part No.	Description
1	TR-101-2013	Panel
2	SCR-669	Phillips Binder Head Machine Screw No. 4-40
3	TR-101-2032	Capstan Cover
4	SCR-667	Phillips Oval Head Machine Screw No. 6-32 x 1/4
5	TR-101-3006	Indicator Light Dome
6	SCR-666	Phillips Binder Head Machine Screw No. 10-32 x 3/8
7	TR-101-2077	Tape Disc and Takeup Assembly
7A	SCR-669	Phillips Binder Head Machine Screw No. 4-40
7B	TR-101-2079	Tape Disc Assembly
7C	TR-101-2061	Felt Washer
7D	TR-101-2087	Takeup Drum Assembly
8	TR-101-2002	"O" Ring Belt
9	TR-101-2083	Capstan Assembly
10	TR-101-2073	Spring Retainer
11	TR-101-2082	Rewind Drum Assembly
11A	TR-101-2060	Felt Washer
12	TR-101-2044	Bakelite Washer
13	TR-101-2030	Felt Washer
14	TR-101-2065	Fishpaper Washer
15	TR-101-2003	Idler Wheel
16	WAS-496	Bakelite Washer
17	TR-101-2012	Felt Washer
18	TR-101-2081	Belt Pulley Assembly
19	WAS-496	Bakelite Washer
20	TR-101-2072	Spring Retainer
21	TR-101-2080	Belt Pulley Lever Assembly
	TR-101-2073	Spring Retainer
22	TR-101-2040	Brake Spring
23	TR-101-2094	Brake Assembly
24	TR-101-2070	Felt Washer
25	TR-101-2011	Bakelite Washer
26	TR-101-2073	Spring Retainer
27	TR-101-2091	Control Link Assembly
28	TR-101-2038	Idler Lever Spring
29	TR-101-2039	Idler Cam Spring
30	TR-101-2089	Idler Lever Assembly
31	TR-101-2031	Retaining Ring
32	TR-101-2043	Idler Cam
33	TR-101-2049	Control Shaft
34	SCR-J-323	Binder Head Machine Screw No. 8-32
35	TR-101-2068	Motor Mounting Plate
36	TR-101-2001	Grommet
37	TR-101-2069	Plain Washer, Special
38	WAS-N-118	Lock Washer No. 10
39	SCR-G-143	Round Head Machine Screw No. 10-32
40	TR-101-2095	Fan
41	TR-101-2000	Motor
42	NUT-J-130	Nut No. 10-32
43	SCR-G-192	Allen Set Screw No. 6-32
44	TR-101-2033	Motor Belt Pulley
45	TR-101-2090	Base and Bushing Assembly

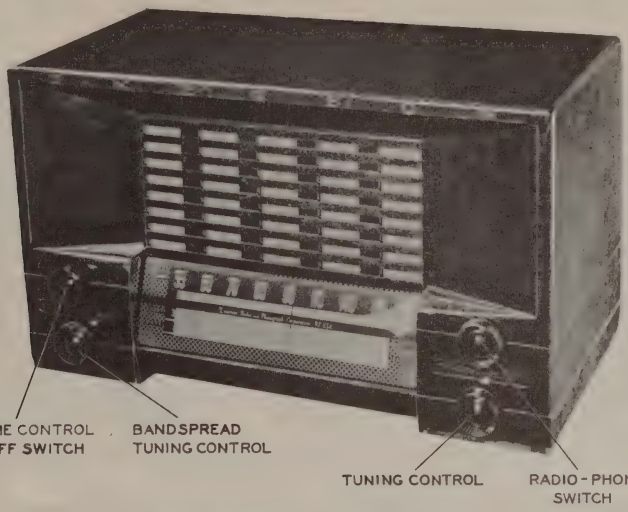
ELECTRICAL

V1		6SJ7 Mic. Pre-Amp.
V2		6SJ7 AF Amp.
V3		6K6GT Power Output
V4		6J5GT Bias Oscillator
V5		6X5GT Rectifier
C1A	TR-101-3042	30 Mfd. @ 350 V. Filter
C1B		20 Mfd. @ 350 V. Filter
C2	TR-101-3041	20 Mfd. @ 350 V. Decoupling

ELECTRICAL (Cont'd)

Item No.	Part No.	Description
C3	TR-101-3038	25 Mfd. @ 25 V. Output Cathode Bypass
C4	TR-101-3037	100 Mfd. @ 25 V. Mic. Pre-Amp. Cathode Bypass
C5	TR-101-3054	.05 Mfd. @ 400 V. Mic. Pre-Amp. Screen Bypass
C6	TR-101-3057	.01 Mfd. @ 600 V. Audio Coupling
C7	TR-101-3054	.05 Mfd. @ 400 V. AF Cathode Bypass
C8	TR-101-3054	.05 Mfd. @ 400 V. AF Screen Bypass
C9	TR-101-3053	.01 Mfd. @ 600 V. Audio Coupling
C10	TR-101-3058	1000 Mmf. @ 500 V. AF Feedback
C11	TR-101-3094	50 Mmf. @ 500 V. Tone Compensation
C12	TR-101-3060	.01 Mfd. @ 400 V. Audio Coupling
C13	TR-101-3106	.05 Mfd. @ 200 V. Audio Coupling
C14	TR-101-3057	10000 Mmf. @ 300 V. Fixed Trimmer
C15	TR-101-3059	5000 Mmf. @ 500 V. Bias Osc. Grid Cap.
R1	TR-101-3044	500K Volume Control and Switch
R2	TR-101-3071	1 Meg. 1/2 Watt, Pre-Amp. Grid
R3	TR-101-3062	1000 Ohm 1/2 Watt, Pre-Amp. Cathode
R4	TR-101-3068	270K Ohm 1/2 Watt, Pre-Amp. Plate
R5	TR-101-3072	2.2 Meg. 1/2 Watt, Pre-Amp. Screen
R6	TR-101-3064	47K Ohm 1/2 Watt, Filter
R7	TR-101-3063	1500 Ohm 1/2 Watt, AF Cathode
R8	TR-101-3072	2.2 Meg. 1/2 Watt, AF Screen
R9	TR-101-3069	470K 1/2 Watt, AF Plate
R10	TR-101-3073	470 Ohm 1 Watt, Output Cathode
R11	TR-101-3071	1 Meg. 1/2 Watt, Output Grid
R12	TR-101-3066	100K Ohm 1/2 Watt, Voltage Divider
R13	TR-101-3069	470K Ohm 1/2 Watt, Voltage Divider
R14	TR-101-3070	560K Ohm 1/2 Watt, Tone Compensation
R15	TR-101-3067	220K Ohm 1/2 Watt, Series Indicator
R16	TR-101-3105	470 Ohm 1/2 Watt, Bias Osc. Cathode
R17	TR-101-3065	8200 Ohm 1/2 Watt, Bias Osc. Grid
R18	TR-101-3095	820 Ohm 2 Watt, Tone Compensation
R19	TR-101-3093	100 Ohm 1 Watt, Tone Compensation
T1	TR-101-3052	Power Transformer
T2	TR-101-3056	Output Transformer
SP1		PM Speaker (3.2 Ohm Voice Coil)
L1	TR-101-3085	Filter Choke
L2	TR-101-3025	Bias Oscillator Coil
M1	TR-101-3043	Slide Switch Assembly
M2	TR-101-3091	Erase Interlock Switch
M3	TR-101-3047	Level Indicator (Neon)

EMERSON MODELS 597, (Ch. 120073B), 607 (Ch. 120074A)



EMERSON MODELS 597, (Ch. 120073B), 607 (Ch. 120074A)

EMERSON MODEL 597

TRADE NAME	Emerson, Models 597 (Ch. 120073B), 607 (Ch. 120074A)
MANUFACTURER	Emerson Radio and Phonograph Corp., 111 8th Ave., New York 11, New York
TYPE SET	AC Operated Multi-Band Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 6SB7Y Converter, 6SG7 IF Amp., 6SQ7 DET-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	105-125 Volts AC (Model 597) 105-125 or 210-240 Volts AC (Model 607) RATING .44 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC SHORT WAVE #1 3.2-7.5MC, #2 9-22MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer to the last reference mark at the left hand end of the dial backplate.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (Grid) of 6SB7Y (V1). Low side to chassis.	455KC (400 ∿ Mod.)	BC (max. clock-wise)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	200MMF	High side to "Ant." terminal on antenna terminal strip.	455KC	"	"	"	A5	Turn antenna switch to "EXT" antenna position. Adjust for MINIMUM output.
3.	200MMF	"	1450KC	"	1450KC	"	A6, A7	Adjust for maximum output.
4.	200MMF	"	600KC	"	600KC	"	A8	Adjust for maximum output. Repeat steps 3 and 4 until no further improvements can be made.
5.	200MMF	"	7.5MC	SW 1 (third pos. CW)	7.5MC	"	A9, A10	Adjust for maximum output.
6.	200MMF	"	22.5MC	SW #2 (second position CW)	22.5MC	"	A11, A12	Set band spread knob so the slug is half way in the coil. Adjust for maximum output.
7.		Loop	600KC	"	600KC	"	A13	Turn antenna switch to "Loop". Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 597

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	6SB7Y	6SB7Y	8R	
V2	IF Amp.	6SG7	6SG7	8BK	
V3	DET.-AVC-AF	6SQ7	6SQ7	8Q	
V4	Power Output	6K6GT	6K6GT	7S	
V5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	350	925113	AF64H	UP3335		EL-32	Filter Red Dot
B	30	350						Filter
C2	8	350	925114	PRS450/8	BR835A		UT-83	Osc. Anode Bypass
C3	2.2					NPOK-3		RF Coupling
C4	2200	500	915009					Fixed Padder
C5	3500	500	915008					Fixed Padder
C6	470	500	910014	1468-0005	5W5T5	GP2K-470	1FM-35	RF Coupling
C7	110	500	910010	1468-0001	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C8	56	500	910025	1469-00005	5R5Q5	GP1K-56	MS-45	Fixed Trimmer
C9	.01	400	920090	P488-01	PTE4S1	821-01	TM-11	Osc. Anode Bypass
C10	.01	400	920090	P488-01	PTE4S1	821-01	TM-11	Conv. Plate Decoupling
C11	.05	400	920030	P488-05	PTE4S5		TM-15	AVC Filter
C12	.01	400	920090	P488-01	PTE4S1	821-01	TM-11	IF Screen Bypass
C13	.01	400	920090	P488-01	PTE4S1	821-01	TM-11	IF Plate Decoupling
C14	.002	600	920010	P688-002	PTE6D2	GP2M-002	TM-22	Audio Coupling
C15	470	500	910014	1468-0005	5W5T5	GP2K-470	1FM-35	AF Amp. Plate Bypass
C16	.01	600	920210	P688-01	PTE6S1	821-01	TM-11	Audio Coupling
C17	.002	400	920010	P688-002	PTE6D2	GP2M-002	TM-22	Tone Compensation
C18	.05	400	920030	P488-05	PTE4S5		TM-15	Tone Compensation
C19	.005	400	920180	P688-005	PTE6D5	811-005	TM-25	Tone Compensation
C20	.005	400	920180	P688-005	PTE6D5	811-005	TM-25	Output Plate Bypass

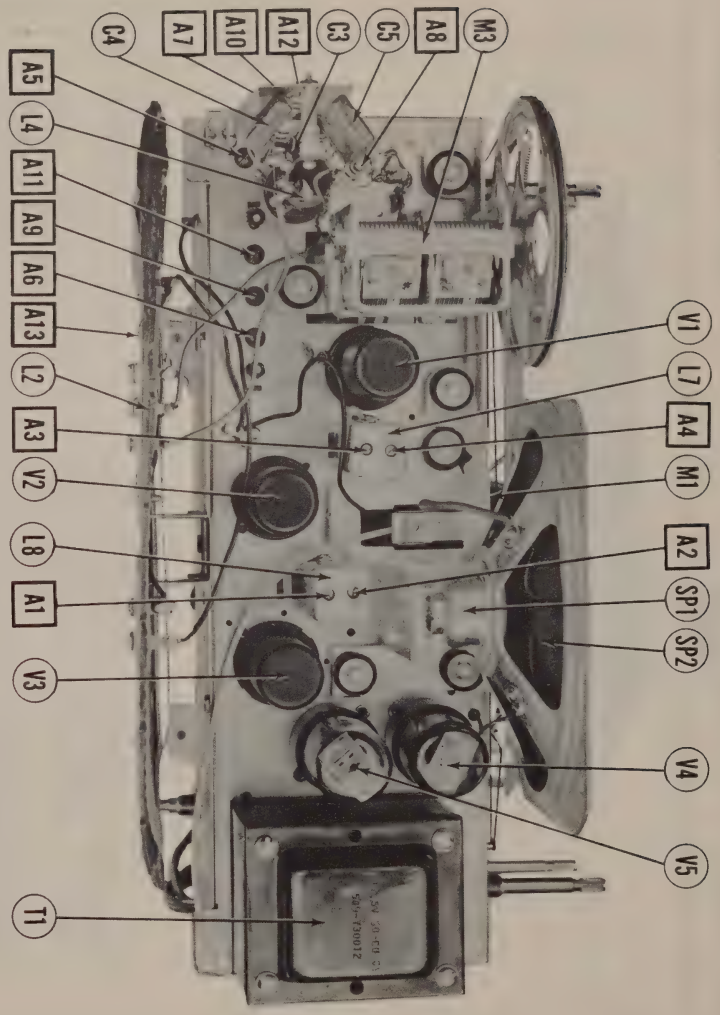
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	390058	Q13-133	AM-60-Z	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Attach to R1A per instructions
R2A	400KΩ	½	390059	Q13-133	AM-60-Z	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R3	470KΩ	½	351130	BTS-470K	Conv. Grid
R4	1000Ω	½	350490	BTS-1000	Conv. Plate Decoupling
R5	150Ω	½	350290		Parasitic Supp.
R6	22KΩ	½	340810	BTS-22K	Osc. Grid
R7	10KΩ	1	370730	BTA-10K	Osc. Anode
R8	27KΩ	1	370830	BTA-27K	IF Screen
R9	1000Ω	½	350490	BTS-1000	IF Plate Decoupling
R10	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R11	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R12	470KΩ	½	351130	BTS-470K	Tone Compensation
R13	470KΩ	½	351130	BTS-470K	Tone Compensation
R14	15 Meg.	½	351490	BTS-15 Meg.	AF Amp. Grid
R15	470KΩ	½	351130	BTS-470K	AF Amp. Plate
R16	470Ω	1	370410	BTA-470	Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1A	117VAC @ .44A	550VCT .062ADC	5VAC @ 2A	6.3VAC @ 1.8A	730012 *	P-6011 #	P-2951 #	PH-70B #
B					730013 †			

Add series resistor to reduce plate voltage.
* Used in chassis 120073B only.
† Used in chassis 120074A.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2A	7.5KΩ	3.5Ω	465Ω	.5Ω	734036 *	A-3849	A-3020	RO-13 ‡	‡ Drill one new mounting hole.
B					734037 †				* Chassis 120073B only. † Chassis 120074A only.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.5Ω	180031P	MOD.46J6	46A07	
	CONE DIA.	V. C. DIA.				
SP2	3 7/8" x 5 7/8"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1A	.062A	510Ω	8.5 Henries	737001 *	C-1708 ‡	C-2990 ‡	R-1365 ‡	‡ Drill one new mounting hole.
B				737008 †				* Chassis 120073B only. † Chassis 120074A only.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
L2	BC Loop Ant.	2Ω		700037		Includes trimmer
L3	Wave Trap	55Ω		708015		Includes trimmer
L4A	Ant. Coil	30Ω	5Ω	710017		535-1620 KC
B	Ant. Coil	.8Ω	1.1Ω			3.2-7.5MC } Includes trimmers
C	Ant. Coil	.1Ω				9-22MC
L5A	Osc. Coil	.5Ω	6Ω	716027		535-1620KC
B	Osc. Coil	.5Ω	.8Ω			3.2-7.5MC } Includes trimmers
C	Osc. Coil	.2Ω	.5Ω			9-22MC
L6	Bandspread Coil	.5Ω		708014		
L7	1st IF Trans.	16Ω	17Ω	720064	16-6678	
L8	2nd IF Trans.	12.5Ω		720065		

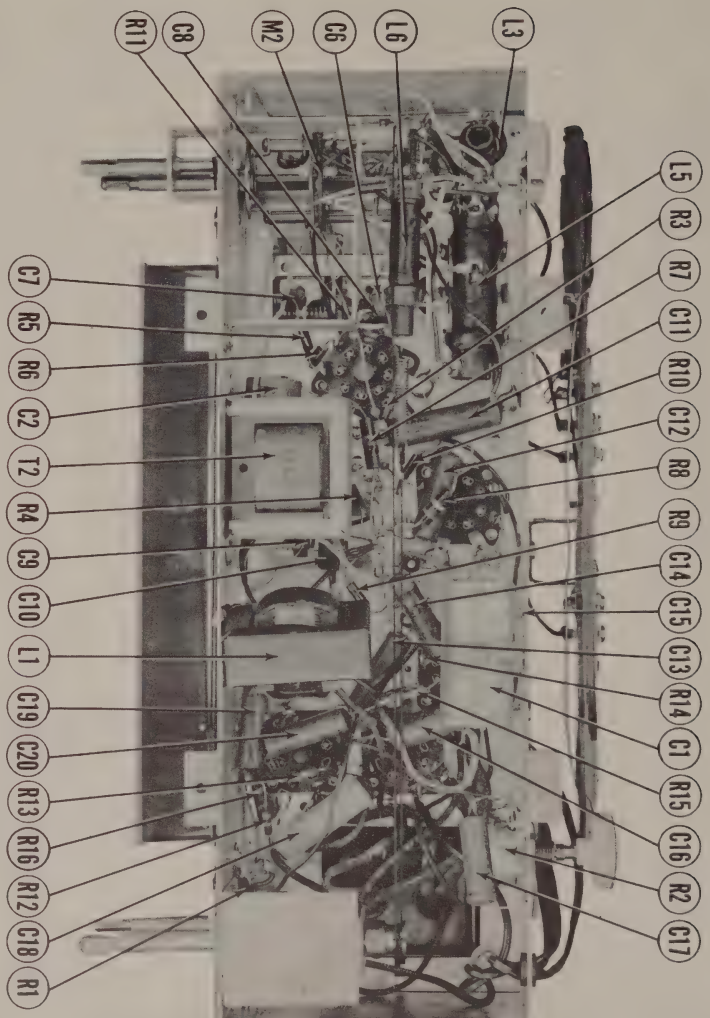
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					EMERSON PART No.		
M1	Bayonet	6-8	.25	Blue	807020		Type #44

MISCELLANEOUS

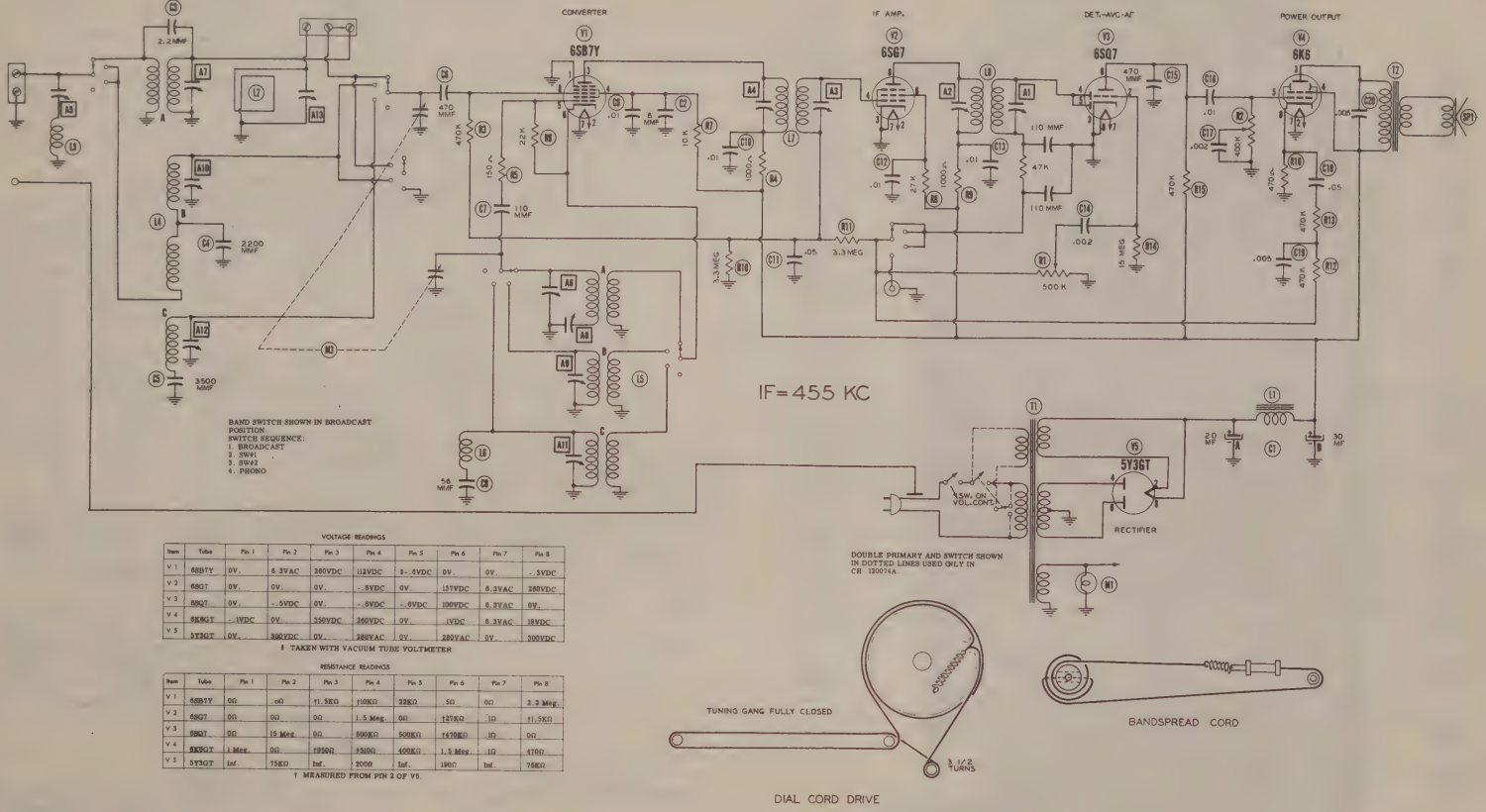
ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2	Switch	510036	Band-Phono
M3	2 Gang Var. Cap.	900048	
	Cabinet	140217	Model 597
	Cabinet	140186	Model 607
	Dial Crystal	520088	Model 597
	Dial Crystal	520089	Model 607
	Dial Pointer	525017	

CHASSIS—BOTTOM VIEW



SET 90
FOLDER 5

EMERSON MODEL 597



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SB7Y	0V.	6.3VAC	260VDC	112VDC	8-.6VDC	0V.	0V.	-.3VDC
V 2	6SG7	0V.	0V.	0V.	-.8VDC	0V.	137VDC	6.3VAC	260VDC
V 3	6SQ7	0V.	-.5VDC	0V.	-.6VDC	-.6VDC	100VDC	6.3VAC	0V.
V 4	6K6GT	-.1VDC	0V.	250VDC	260VDC	0V.	1VDC	6.3VAC	18VDC
V 5	5Y3GT	0V.	300VDC	0V.	280VAC	0V.	280VAC	0V.	300VDC

† TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SB7Y	0Ω	.0Ω	†1.5KΩ	†10KΩ	22KΩ	.5Ω	0Ω	2.2 Meg.
V 2	6SG7	0Ω	0Ω	0Ω	1.5 Meg.	0Ω	127KΩ	.1Ω	†1.5KΩ
V 3	6SQ7	0Ω	15 Meg.	0Ω	500KΩ	500KΩ	†470KΩ	.1Ω	0Ω
V 4	6K6GT	1 Meg.	0Ω	†250Ω	†510Ω	400KΩ	1.5 Meg.	.1Ω	470Ω
V 5	5Y3GT	Inf.	75KΩ	Inf.	200Ω	Inf.	190Ω	Inf.	75KΩ

† MEASURED FROM PIN 2 OF V5.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

EMERSON MODEL 609 (CH. 120084-B)

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EMERSON MODEL 609 (CH. 120084-B)

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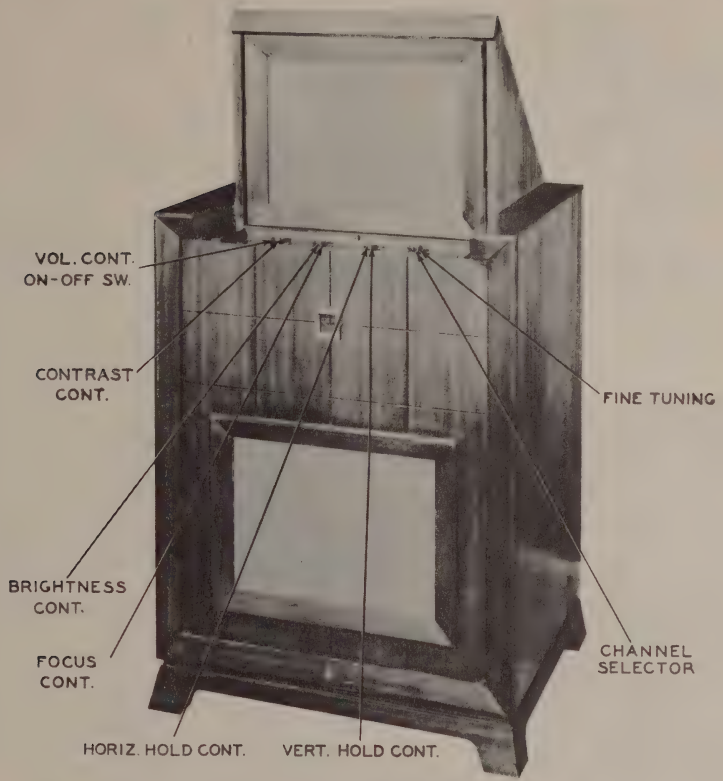

EMERSON
MODEL 609 (Ch. 120084-B)

TRADE NAME	Emerson Model 609 (Ch. 120084-B)
MANUFACTURER	Emerson Radio and Phono. Corp., 111 Eighth Ave., New York 11, New York
TYPE SET	Projection Type Television Receiver
TUBES	Twenty Seven
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2.17 Amp. at 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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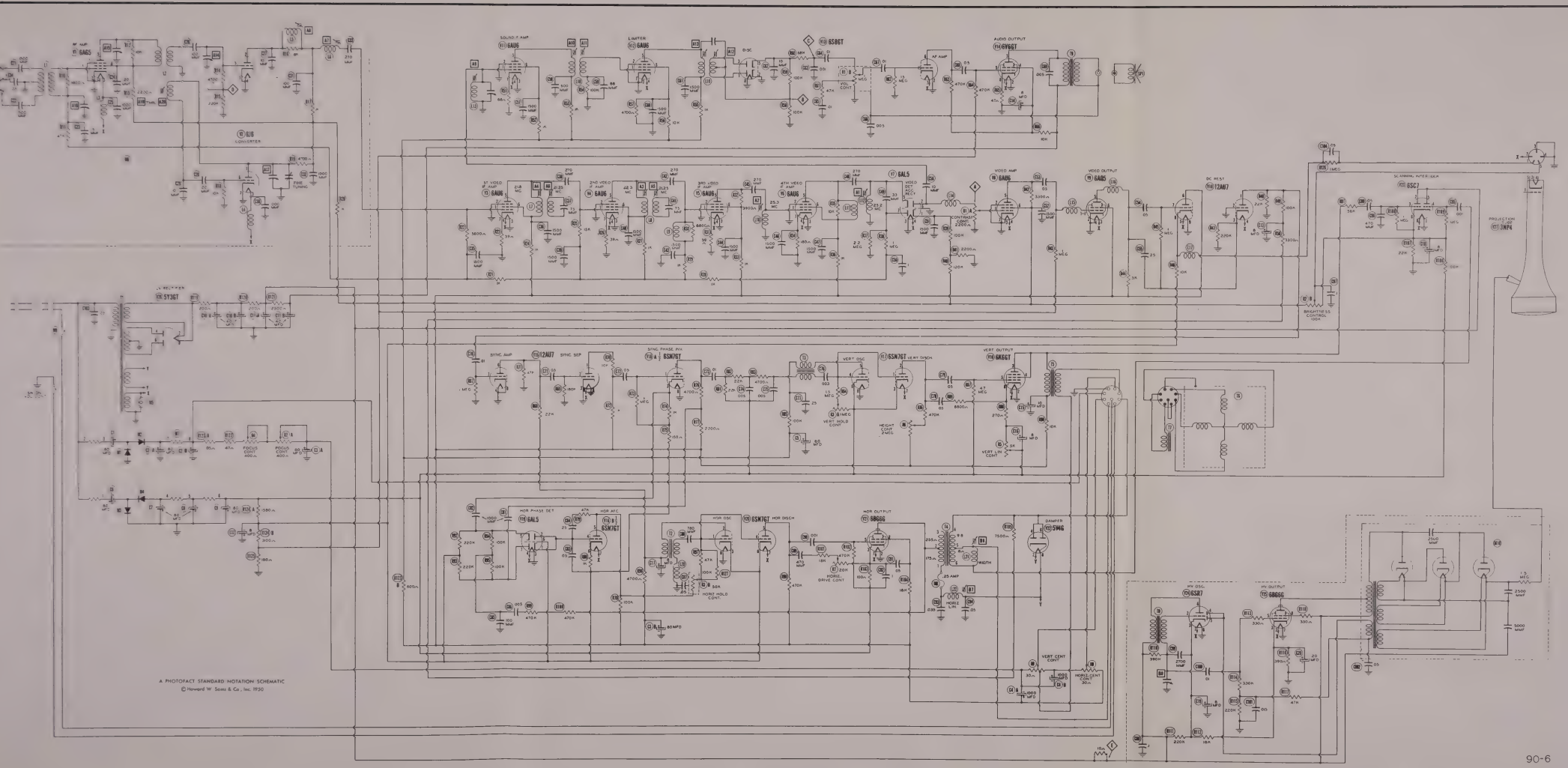
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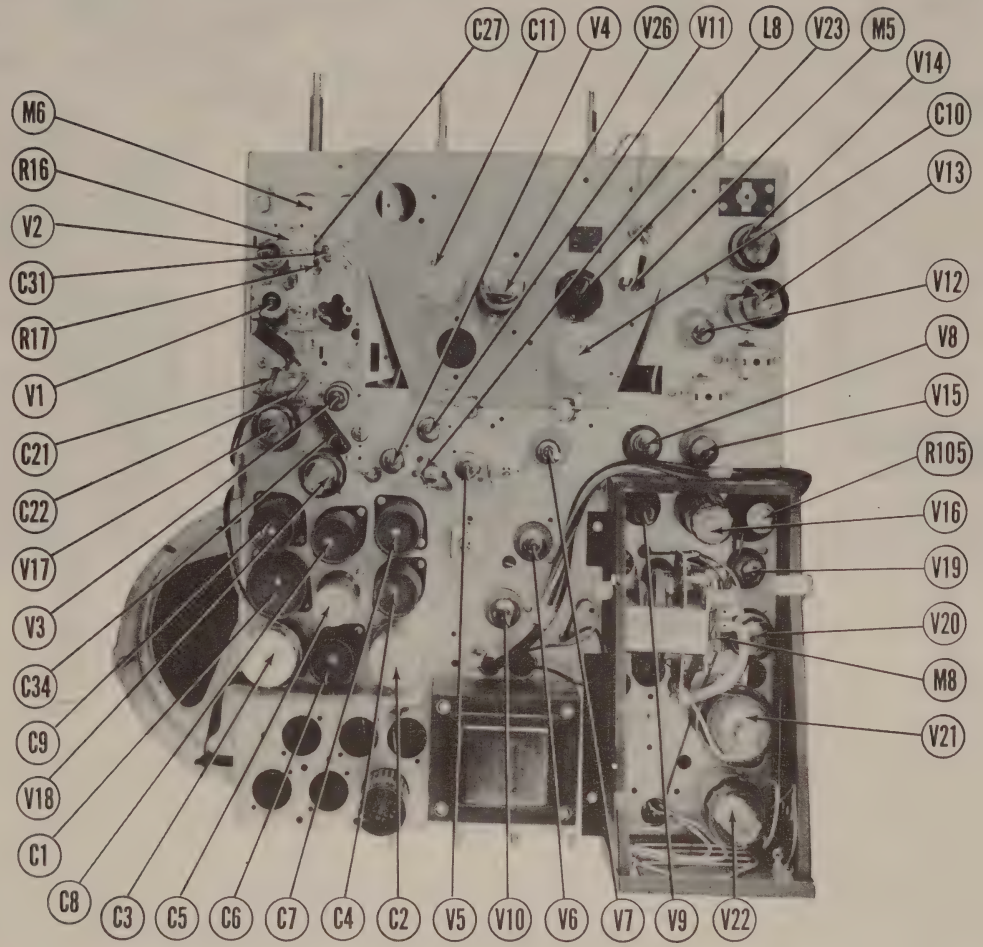
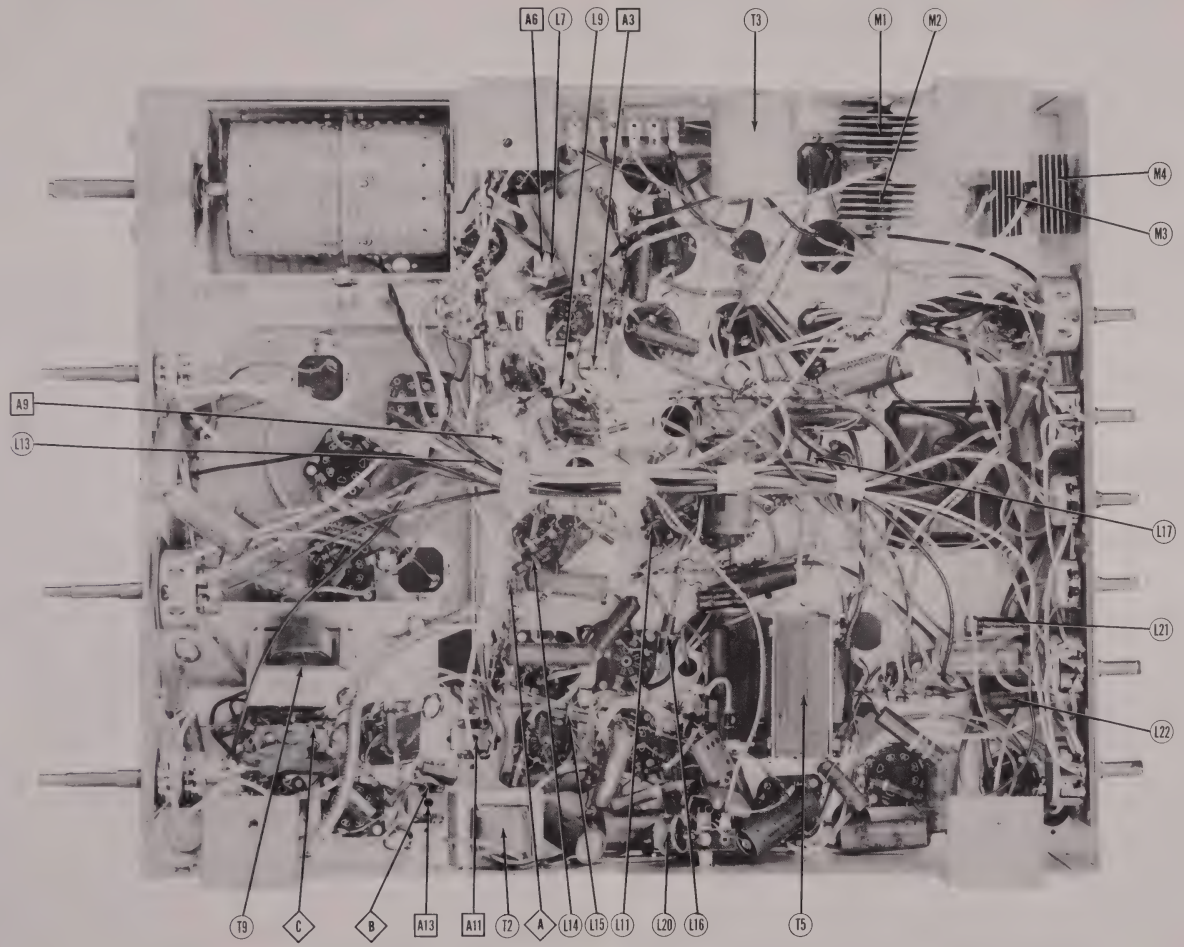
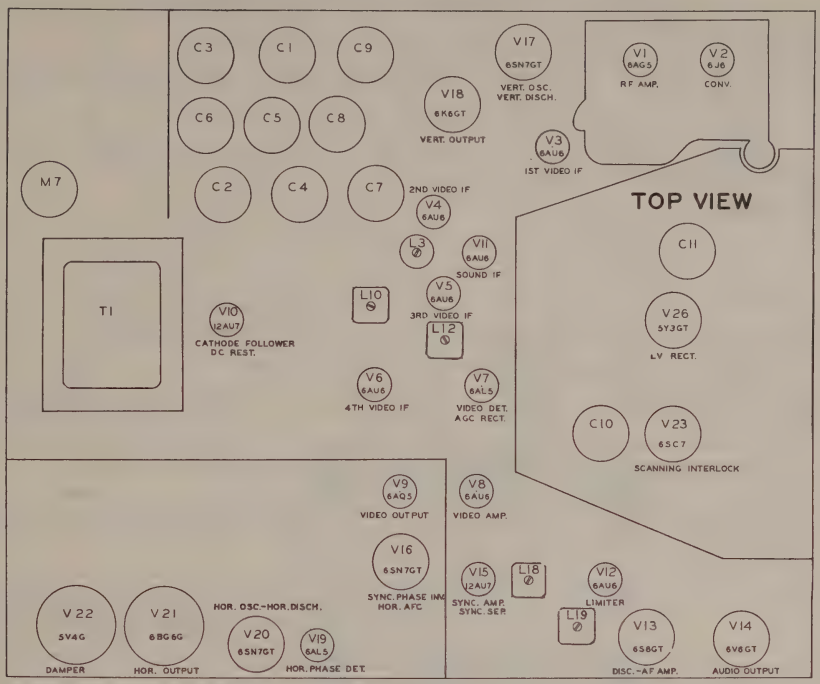
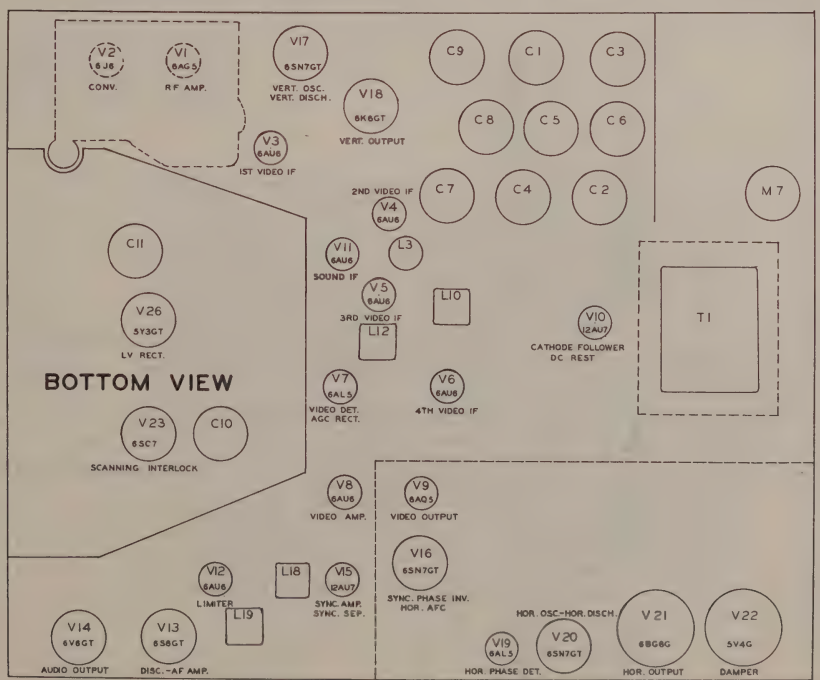


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The projection unit need not be removed, if an adaptor cable is used to complete the focus and deflection circuits.
The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V20).

VIDEO IF ALIGNMENT

Remove the channel 13 segment of the converter section of the tuner turret, and turn the channel selector switch to channel 13 to disable the local oscillator.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	25.2MC (Unmod.)	13 (see note above)	DC Probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	Direct	"	25.3MC	"	"	A2	"
3.	Direct	"	22.3MC	"	"	A3	"
4.	Direct	"	21.8MC	"	"	A4	"
5.	Direct	"	21.25MC	"	"	A5, A6	Adjust for MINIMUM deflection.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to ungrounded tube shield floating over converter tube (V2). Low side to chassis.	23MC (10MC SWP)	21.75MC 25.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A7, A8	Adjust A7 and A8 to place markers as shown in Fig 1. If necessary retouch A1 thru A6 to obtain response curve similar to Fig 1.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 2 (plate) of 6AL5 (V7). Low side to chassis.	4.5MC (1MC SWP)	4.5MC	Any channel not used locally	Vert. Amp. to Point (B). Low side to chassis.	A9, A10, A11	Adjust for maximum amplitude and symmetry as per Fig 2.
8.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A12, A13	Adjust A12 so 4.5MC occurs at center of crossover lines as per Fig 2. Adjust A13 for maximum amplitude and straightness of crossover lines.

RF ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance usually 50 ohms.
Replace the channel 13 segment of the tuner turret.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. to Point (D). Low side to chassis.	A14, A15, A16	Adjust for response curve similar to Fig 4 with markers above 70%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to Fig 4. If markers are below 70% on any channel make slight adjustment of A14, A15, and A16 with channel selector set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT

The overall oscillator circuit adjustment A17 is pre-set at the factory and should not be adjusted in the field.
The individual channels oscillator adjustments are reached through a hole just to the right of the channel selector switch. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Set the fine tuning control to the mid-position of its range.
The sweep generator output lead should be terminated with its characteristic impedance usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A18	Adjust to place markers as shown in Fig 5.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A19	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A20	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A21	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A22	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A23	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A24	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A25	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A26	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A27	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A28	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A29	

ALIGNMENT INSTRUCTIONS (CONT.)

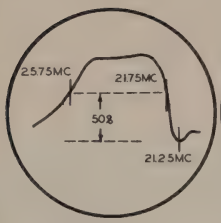


FIG.1

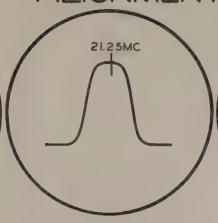


FIG.2

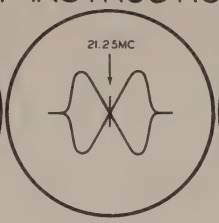


FIG.3

FIG.4

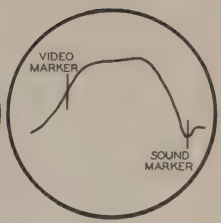
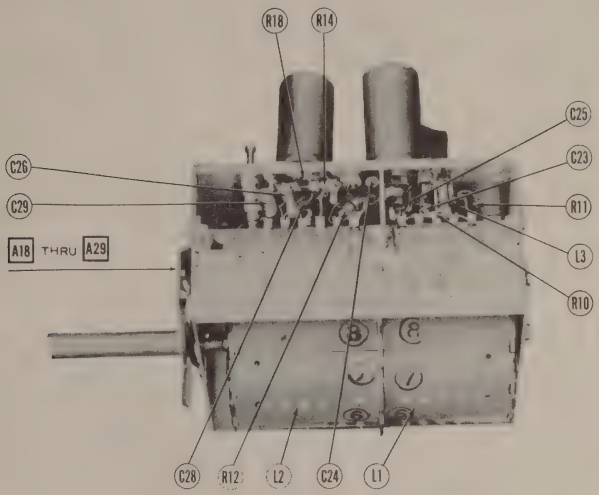
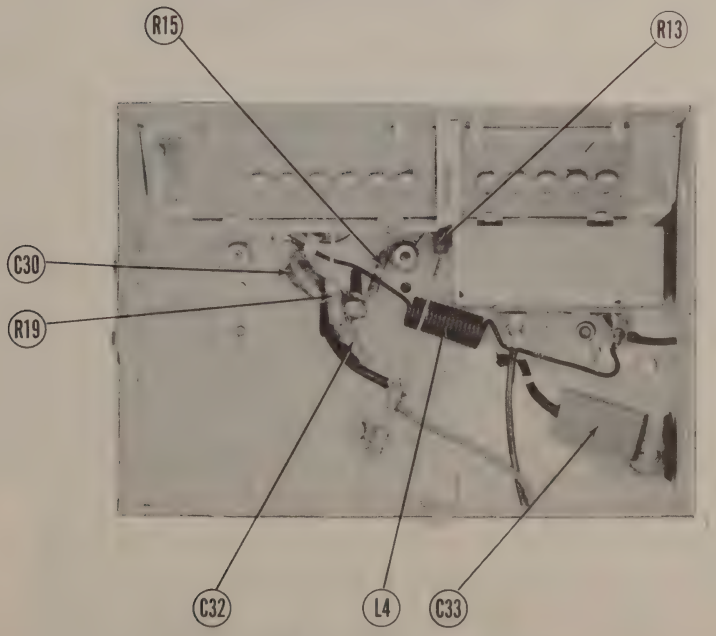


FIG.5



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.5VDC	0V.	6.3VAC	0V.	82VDC	82VDC	0V.		
V 2	6J6	70VDC	95VDC	6.3VAC	0V.	-1.8VDC	§-2.8VDC	0V.		
V 3	6AU6	-.5VDC	0V.	0V.	6.3VAC	130VDC	130VDC	.4VDC		
V 4	6AU6	-.5VDC	0V.	0V.	6.3VAC	130VDC	130VDC	.3VDC		
V 5	6AU6	-.5VDC	0V.	0V.	6.3VAC	110VDC	130VDC	.3VDC		
V 6	6AU6	0V.	0V.	0V.	6.3VAC	130VDC	130VDC	1.4VDC		
V 7	6AL5	1.4VDC	0V.	0V.	6.3VAC	0V.	0V.	-.1VDC		
V 8	6AU6	0V.	0V.	0V.	6.3VAC	85VDC	110VDC	0V.		
V 9	6AQ5	-.7VDC	0V.	6.3VAC	0V.	55VDC	135VDC	-.7VDC		
V 10	12AU7	38VDC	0V.	2.8VDC	6.3VAC	6.3VAC	♦260VDC	♦105VDC	♦122VDC	0V.
V 11	6AU6	0V.	0V.	0V.	6.3VAC	110VDC	100VDC	.6VDC		
V 12	6AU6	-.5VDC	0V.	0V.	6.3VAC	100VDC	34VDC	0V.		
V 13	6S8GT	-.5VDC	0V.	-.6VDC	0V.	0V.	85VDC	6.3VAC	0V.	TOP CAP 0V.
V 14	6V6GT	0V.	0V.	235VDC	200VDC	-2VDC	-6.9VDC	6.3VAC	2VDC	
V 15	12AU7	70VDC	-.7VDC	0V.	0V.	0V.	34VDC	-.1VDC	0V.	6.3VAC
V 16	6SN7GT	♦0V.	♦200VDC	♦7.2VDC	♦-.2VDC	♦16VDC	♦.4VDC	6.3VAC	0V.	
V 17	6SN7GT	▲-120VDC	▲205VDC ▲65VDC	▲0V.	▲-120VDC	▲280VDC	▲0V.	6.3VAC	0V.	
V 18	6K6GT	0V.	0V.	▲220VDC	▲220VDC	▲0V.	▲21VDC	6.3VAC	▲21VDC	
V 19	6AL5	♦-.2VDC	♦-.2VDC	0V.	6.3VAC	♦1.5VDC	♦0V.	♦-1.9VDC		
V 20	6SN7GT	♦-47VDC	♦220VDC	♦0V.	♦-47VDC	♦37VDC	♦0V.	6.3VAC	0V.	
V 21	6BG6G	0V.	0V.	▲6.9VDC	0V.	▲-4.3VDC	▲0V.	6.3VAC	▲185VDC	TOP CAP *
V 22	5V4G	0V.	225VDC	0V.	140VDC	0V.	140VDC	0V.	225VDC	
V 23	6SC7	0V.	365VDC	-55VDC	-24VDC	90VDC	7.8VDC	0V.	6.3VAC	
V 24	6SR7	0V.	-55VDC	80VDC	-135VDC	-135VDC	365VDC	6.3VAC	0V.	
V 25	6BG6G	-105VDC	6.3VAC	11VDC	-110VDC	-105VDC	-135VDC	0V.	365VDC	TOP CAP *
V 26	5Y3GT	0V.	400VDC	0V.	380VAC	0V.	380VAC	0V.	400VDC	
V 27	3NP4	♦100VDC	6.3VAC	0V.	0V.	105VDC				

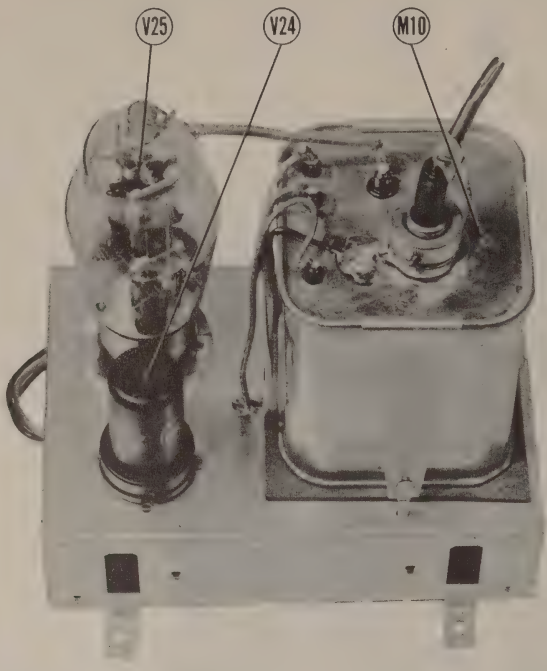
§ TAKEN WITH VACUUM TUBE VOLTMETER.
♦ MEASURED FROM PIN 6 OF V20.
▲ MEASURED FROM PIN 6 OF V17.
* DO NOT MEASURE.

RESISTANCE READINGS

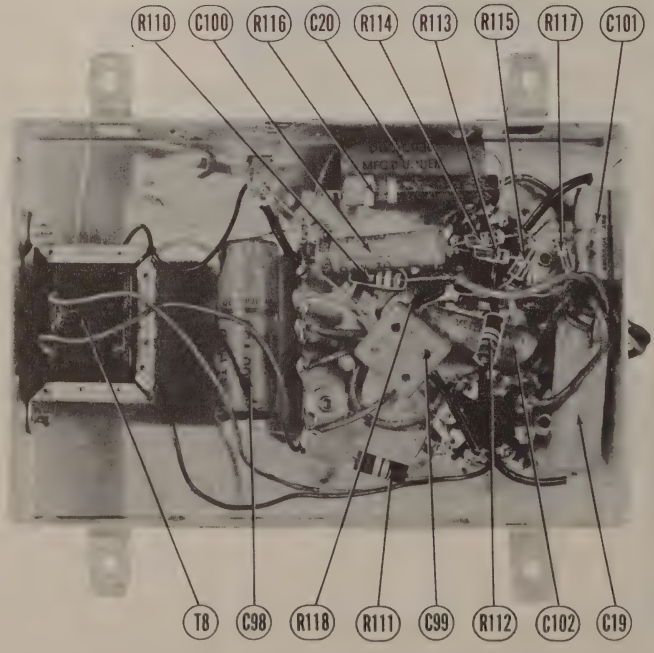
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	3.2 Meg.	0Ω	.1Ω	0Ω	†3.5KΩ	†3.5KΩ	0Ω		
V 2	6J6	†7KΩ	†2.8KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	3.2 Meg.	0Ω	0Ω	.1Ω	†1.3KΩ	†1.3KΩ	39Ω		
V 4	6AU6	3.2 Meg.	0Ω	0Ω	.1Ω	†1.3KΩ	†1.3KΩ	39Ω		
V 5	6AU6	3.2 Meg.	0Ω	0Ω	.1Ω	†5KΩ	†1.3KΩ	39Ω		
V 6	6AU6	.2Ω	0Ω	0Ω	.1Ω	†1.3KΩ	†1.3KΩ	180Ω		
V 7	6AL5	100KΩ	2.2KΩ	0Ω	.1Ω	.2Ω	0Ω	2.2 Meg.		
V 8	6AU6	12Ω	0Ω	0Ω	.1Ω	†4KΩ	†1000Ω	0Ω		
V 9	6AQ5	1 Meg.	0Ω	.1Ω	0Ω	†3.5KΩ	†320Ω	1 Meg.		
V 10	12AU7	†25KΩ	0Ω	220KΩ	.1Ω	.1Ω	†320Ω	1.2 Meg.	13KΩ	0Ω
V 11	6AU6	4.5Ω	0Ω	0Ω	.1Ω	†2KΩ	†2KΩ	68Ω		
V 12	6AU6	100KΩ	0Ω	0Ω	.1Ω	†2KΩ	†10KΩ	0Ω		
V 13	6S8GT	100KΩ	0Ω	100KΩ	Inf.	200KΩ	#480KΩ	.1Ω	0Ω	TOP CAP 15 Meg.
V 14	6V6GT	0Ω	0Ω	#3KΩ	#13KΩ	470KΩ	180Ω	.1Ω	47Ω	
V 15	12AU7	†12KΩ	180KΩ	0Ω	0Ω	0Ω	†20KΩ	1 Meg.	0Ω	.1Ω
V 16	6SN7GT	1 Meg.	†7.2KΩ	4.5KΩ	Inf.	†100KΩ	4KΩ	.1Ω	0Ω	
V 17	6SN7GT	1.5 Meg.	†470KΩ †2.5 Meg.	4.8KΩ	1.5 Meg.	†100KΩ	4.8KΩ	.1Ω	0Ω	
V 18	6K6GT	Inf.	0Ω	†10KΩ	†10KΩ	4.7 Meg.	13KΩ	.1Ω	11KΩ	
V 19	6AL5	Inf.	Inf.	0Ω	.1Ω	150KΩ	3.2KΩ	150KΩ		
V 20	6SN7GT	150KΩ	†5KΩ	3.2KΩ	150KΩ	†470KΩ	3.2KΩ	.1Ω	0Ω	
V 21	6BG6G	Inf.	0Ω	4.8KΩ	Inf.	470KΩ	4.8KΩ	.1Ω	†18KΩ	TOP CAP †7.5KΩ
V 22	5V4G	Inf.	†7.5KΩ	Inf.	†290Ω	Inf.	†290Ω	Inf.	†7.5KΩ	
V 23	6SC7	0Ω	#400Ω	1 Meg.	1 Meg.	#400Ω	15KΩ	0Ω	.1Ω	
V 24	6SR7	0Ω	#390KΩ	17KΩ	270KΩ	270KΩ	#580Ω	.1Ω	0Ω	
V 25	6BG6G	550KΩ	.1Ω	390Ω	220KΩ	550KΩ	270KΩ	0Ω	#700Ω	TOP CAP #660Ω
V 26	5Y3GT	Inf.	100KΩ	Inf.	62Ω	Inf.	60Ω	Inf.	100KΩ	
V 27	3NP4	1 Meg.	.1Ω	0Ω	0Ω	†1KΩ				

† MEASURED FROM PIN 7 OF M7.
♦ MEASURED FROM PIN 8 OF V26.

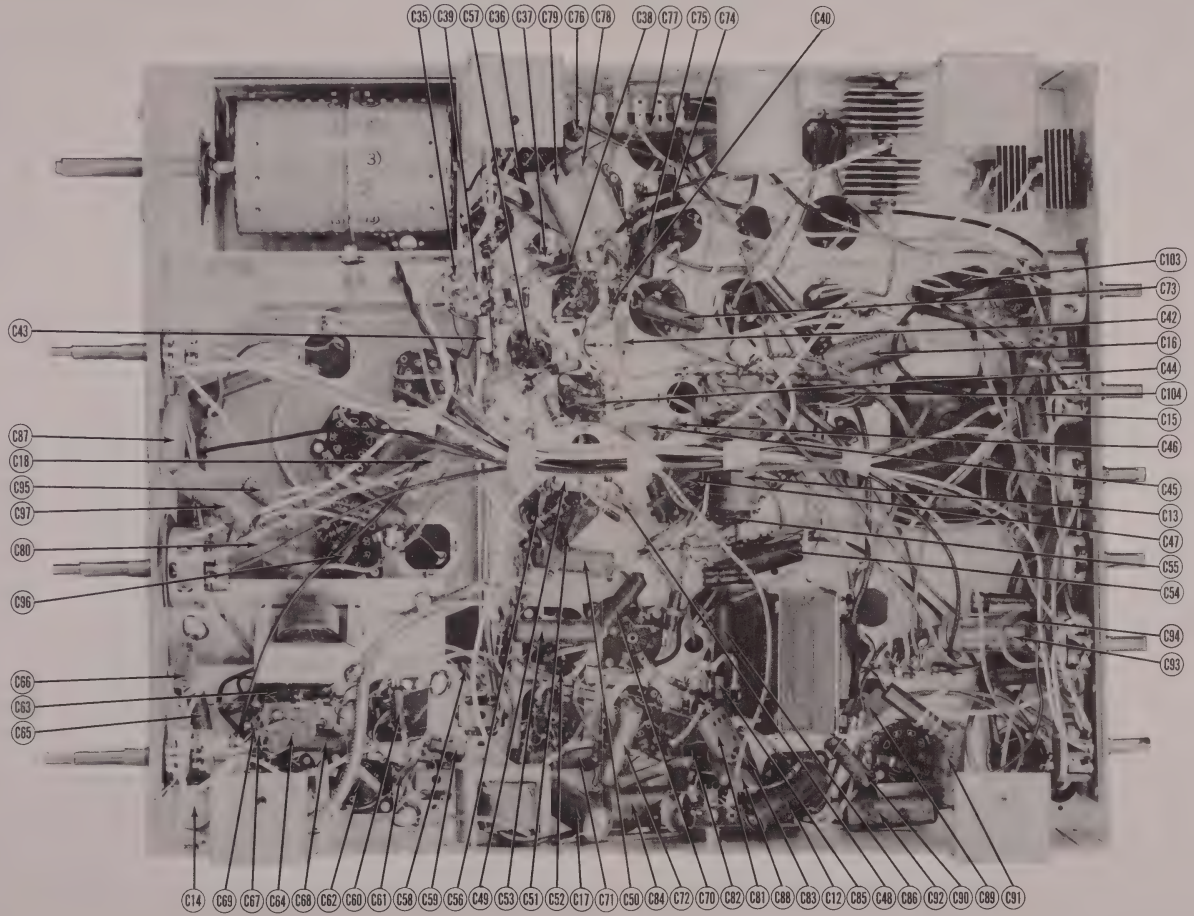
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



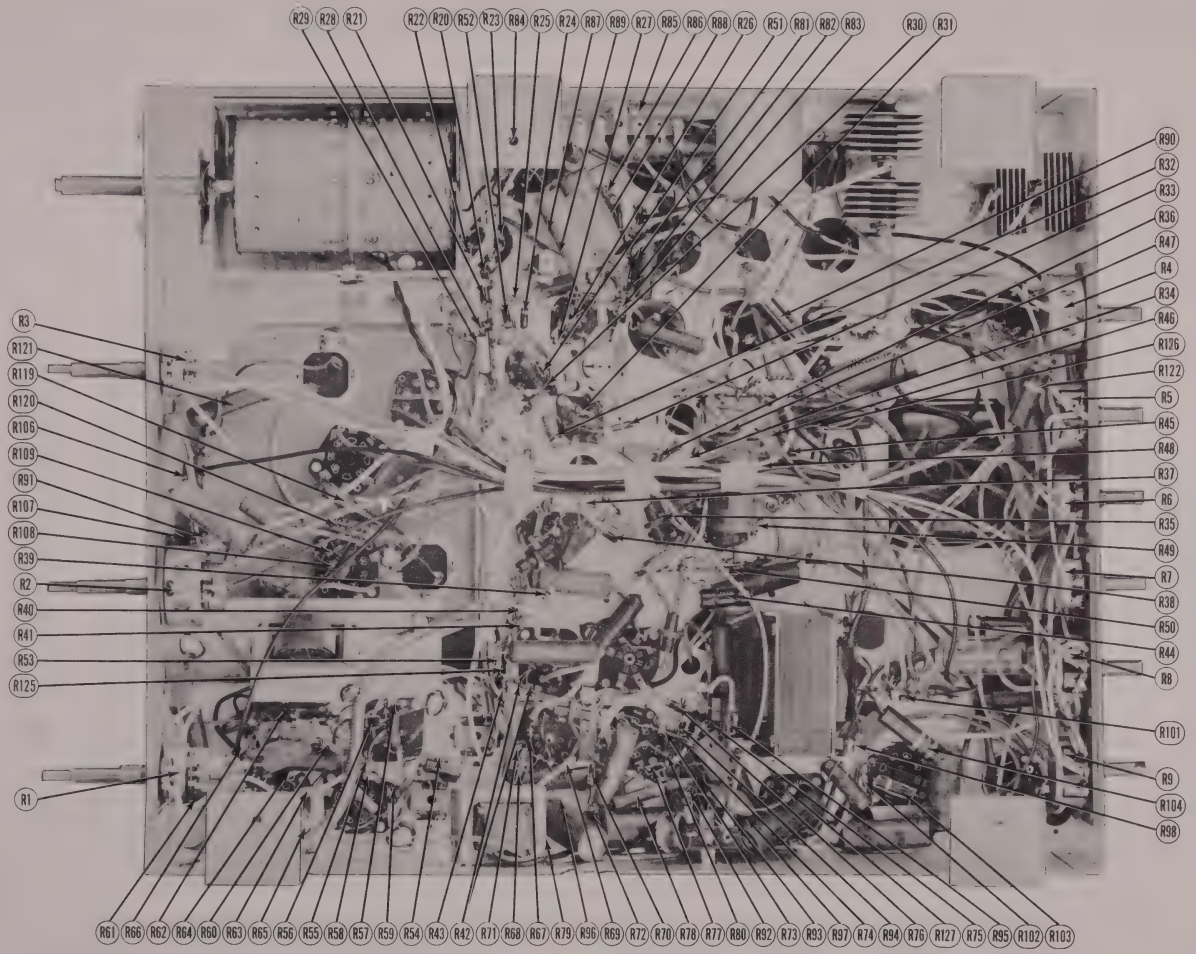
HIGH VOLTAGE SUPPLY - TOP VIEW



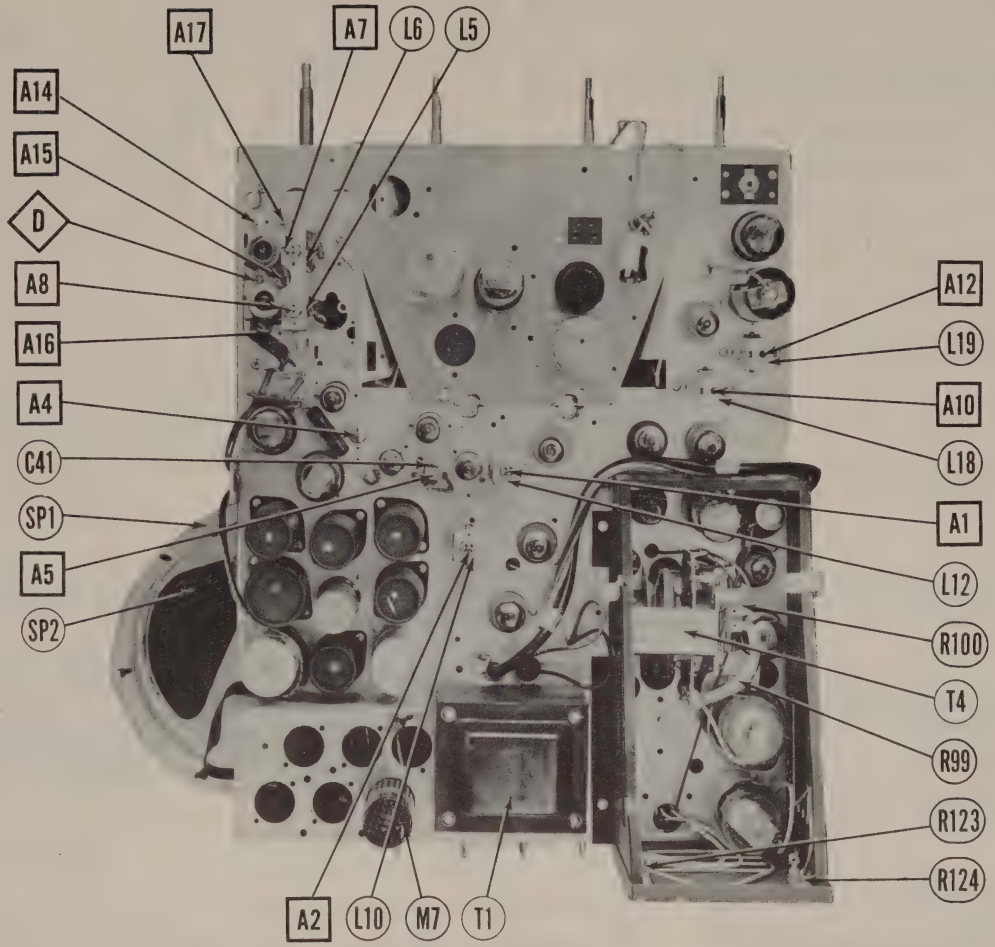
HIGH VOLTAGE SUPPLY - BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA EMERSON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp	800535	6AU8	7BD	
V2	Converter	800536	6BE	7BF	
V3	1st Video IF	800533	6AU6	7BK	
V4	2nd Video IF	800533	6AU6	7BK	
V5	3rd Video IF	800533	6AU6	7BK	
V6	4th Video IF	800533	6AU6	7BK	
V7	Video Det.-AGC Rectifier	800541	6AL5	6BT	
V8	Video Amp.	800533	6AU6	7BK	
V9	Video Output	800031	6AQ5	7BZ	
V10	Cathode Follower-DC Restorer	800026	12AU7	9A	
V11	Sound IF Trap	800533	6AU6	7BK	
V12	Limiter	800533	6AU6	7BK	
V13	Disc.-AF Amp.	800015	[illegible]	8CB	
V14	Audio Output	800270	6V6GT	7AC	
V15	Sync Amp -Sync Sep.	800026	12AU7	9A	
V16	Sync. Phase Inv. - Hor. AFC	800380	6SN7GT	8BD	
V17	Vert. Osc. Vert. Disch	800380	6SN7GT	8BD	
V18	Vert. Output	800016	6K6GT	7S	
V19	Hor. Phase Det	800541	6AL5	6BT	
V20	Hor. Osc -Hor. Disch	800380	6SN7GT	8BD	
V21	Hor. Output	800004	6BG6G	5BT	
V22	Damper	800031	5V4G	5L	
V23	Sawtooth Interlock	800312	[illegible]	8S	
V24	HV Osc.	800033	[illegible]	8Q	
V25	HV Output	800004	[illegible]	5BT	
V26	LV Rectifier	800160	5Y3GT	5T	
V27	Projection Tube	810004	[illegible]	[illegible]	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	50	150	925128	AFH616D	UPTA7474		TVL-61	Voltage Doubler Cap.
C2A	80	300	925129	AFH616G	UP8830		TVL-14	● Filter
B	80	300						● Filter
C3A	80	300	925131	AFH616G	UP8830		TVL-14	● Filter
B	80	300						● Filter
C4A	1000	15	925097	AP20Z020P	UP10BJ		TVL-13	● Hor. Cent. Cont. Bypass
B	1000	15			[illegible]			● Vert. Cent. Cont. Bypass
C5	80	300	925134	AF10J	UP8030		TVL-4	Filter
C6	80	150	925099	AFN16D	UPE8015		TVL-1	Voltage Doubler Cap.
C7	80	300	925132	AFH16G	UP8030		D10214	Filter
C8	80	300	925133	AFH16G	UP8030		D10214	Filter
C9	80	300	925133	AFH16G	UP8030		D10214	Filter
C10A	40	450	925127	AF8SJ	UP4445		TVL-64	● Filter
B	40	450						● Filter
C11A	40	450	925127	AF8SJ	UP4445		TVL-64	● Filter
B	40	450						● Filter
C12	8	250	925111	PBS350/8	BR825		UT-82	Filter
C13	8	350	925114	PBS350/8	BR835		UT-83	DC Res. Plate Dec.
C14	8	350	925114	PBS350/8	BR835		UT-83	Decoupling
C15	10	50	925072	PBR50/10	BR105		TVA-14	Vert. Output Cath. Bypass
C16	8	250	925111	PBS350/8	BR825		UT-82	Vert. Output Decoupling
C17	8	250	925111	PBS350/8	BR825		UT-82	Decoupling
C18	8	350	925114	PBS350/8	BR835		UT-83	Ass'n. Brightness Leveler Cath. Bypass
C19	8	250	925111	PBS350/8	BR825		UT-82	HV Osc. Cath. Bypass
C20	30	50		PBR50/30	BR205		TVA-15	HV Output Cath. Bypass
C21	1500		928008	GP1500M	1W5D15		1FM-215	Antenna Coupling
C22	1500		928006	GP1500M	1W5D15		1FM-215	Antenna Coupling
C23	5			S5CM5PO		NPOK-5		Fixed Trimmer
C24	120			GP12M		GP2K-120		RF Decoupling
C25	1000			GP1000M		GP2L-001		RF Filament Bypass
C26	100			GP100M		GP1K-100		RF Coupling
C27	10	300				NPOK-10		Fixed Trimmer
C28	20			S20ZNPO		NPOK-20		Osc. Grid Cap.
C29	10			S10TN750		N750K-10		Fixed Trimmer
C30	1000			GP1000M		GP2L-001		Conv. Filament Bypass
C31	100			GP100M		GP1K-100		Conv. Plate Decoupling
C32	1000			GP1000M		GP2L-001		RF Bypass
C33	270	500		1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C34	.05	400	922101	P488-05	PTE455		TM-15	Antenna Isolation
C35	1500		928005	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C36	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	1st Y. IF Decoupling
C37	75			CN75JNPO		GP2K-75		Fixed Trimmer
C38	270	500	910015	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C39	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C40	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoupling
C41	75			CN75JNPO		GP2K-75		Fixed Trimmer
C42	270	500	910015	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C43	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C44	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoupling
C45	270	500	910015	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C46	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	4th V. IF Cath. Bypass
C47	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	4th Y. IF Decoupling
C48	270	500	910015	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C49	3		900290	GP53M	5W5Q4	GP1K-33	TM-44	IF Coupling
C50	1	400	923064	P488-1	PTE4P1		TM-1	AGC Filter
C51	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C52	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	RF Bypass
C53	.05	400	923062	P488-05	PTE455		TM-15	Video Coupling
C54	.05	400	923062	P488-05	PTE455		TM-15	Video Coupling
C55	.25	400	923066	P488-25	GT4P25		TC-2	Video Coupling
C56	10	300	910130	1468-00001	5W5Q1	GP1K-10	MS-41	IF Coupling
C57	1500		928008	GP1500M	1W5D15	GP2L-0015	1FM-215	1st S. IF Screen Bypass

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C58	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	1st S. IF Decoupling
C59	68	500	910031	1468-00075	5W5Q7	GP1K-68	1FM-475	Limiter Grid Filter
C60	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	Limiter Screen Bypass
C61	1500		928006	GP1500M	1W5D15	GP2L-0015	1FM-215	Limiter Plate Decoupling
C62	110	500	910060	1468-0000	5W5T1	GP1K-100	1FM-31	RF Bypass
C63	.001	600	923079	P688-001	PTE8D1	GP2L-001	TM-31	De-emphasis
C64	.01	400	923061	P488-01	PTE481	GP2-335-01	TM-11	Audio Coupling
C65	.01	400	923061	P488-01	PTE481	GP2-335-01	TM-11	Tone Compensation
C66	.005	400	923078	P688-005	PTE8D5	GP2M-005	TM-25	Vol. Cont. Isolation
C67	.01	400	923061	P488-01	PTE481	GP2-335-01	TM-11	Audio Coupling
C68	.05	400	923062	P488-05	PTE485		TM-15	Audio Coupling
C69	.005	400	923078	P688-005	PTE8D5	GP2M-005	TM-25	Output Plate Bypass
C70	.01	400	923061	P488-01	PTE481	GP2-335-01	TM-11	Sync. Coupling
C71	.05	400	923062	P488-05	PTE485		TM-15	Sync. Coupling
C72	.05	400	923062	P488-05	PTE485		TM-15	Sync. Coupling
C73	.01	600	923075	P688-01	PTE8B1	GP2-335-01	TM-11	Vert. Sync. Coupling
C74	.005	400	923078	P688-005	PTE8D5	GP2M-005	TM-25	Integrator Net.
C75	.005	400	923078	P688-005	PTE8D5	GP2M-005	TM-25	Integrator Net.
C76	.003	600	923085	P688-003	PTE8D3	GP2M-003	TM-23	Vert. Osc. Grid Cap.
C77	.25	400	923066	P488-25	GT4P25		TC-2	Vert. Osc. Plate Decoupling
C78	.05	600	923073	P688-05	PTE8S5		TM-15	Vert. Discharge
C79	.05	600	923073	P688-05	PTE8S5		TM-15	Vert. Sweep Coupling
C80	.05	400	923062	P488-05	PTE455		TM-15	Vert. Sweep Coupling
C81	1000	500	910027	1467-001	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C82	1000	500	910027	1467-001	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C83	.05	400	923062	P488-05	PTE485		TM-15	AFC Filter
C84	.25	400	923066	P488-25	GT4P25		TC-2	AFC Feedback
C85	100	500	910010	1466-0001	5W5T1	GP1K-100	1FM-31	Voltage Divider
C86	.005	600	923077	P689-005	PTE8D5	GP2M-005	TM-25	Hor. Feedback
C87	.05	400	923062	P488-05	PTE455		TM-15	Hor. Hold Cont. Isolation
C88	780	500	910023	1468-00075	1W5T8	GP2K-750	MS-39	Hor. Osc. Grid Cap.
C89	470	500	910017	1468-0005	5W5T5	GP2K-470	1FM-35	Hor. Discharge
C90	.001	600	923079	P688-001	PTE8D1	GP2L-001	TM-21	Hor. Sweep Coupling
C91	.05	600	923073	P688-05	PTE8S5		TM-15	Hor. Output Screen Bypass
C92	.1	400	923064	P488-1	PTE4P1		TM-1	Hor. Output Cath. Bypass
C93	.035	600	923074	P688-033				Damper Filter
C94	.033	600	923073	P688-05	PTE8S5		TM-15	Damper Filter
C95	.001	600	923071	P688-001	PTE8D1	GP2L-001	TM-21	Hor. Sweep Coupling
C96	470	500	910014	1466-0005	5W5T5	GP2K-470	1FM-35	Auto. Brightness Level Grid Byp.
C97	.1	400	923064	P488-1	PTE4P1		TM-1	Brightness Cont. Bypass
C98	.1	600		P688-1	PTE8P1		TM-1	RF Bypass
C99	2700	500				GP2M-0027		HV Osc. Grid Cap.
C100	.01	600	923075	P688-01	PTE8S1	GP2-335-01	TM-11	HV Osc. Coupling
C101	.015	400		P488-015	PTE8S15		TM-12	Bias Filter
C102	.05	400	923063	P488-05	PTE485		TM-15	Bias Filter
C103	.05	400	923101	P488-05	PTE485		TM-15	Line Filter
C104	.05	400	923063	P488-05	PTE485		TM-15	Video Coupling

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	2200Ω	½	390071		390071	Contrast control
B	1 Meg.	½				Volume control and switch, tapped at 250kΩ
R2A	400Ω	4	380082		390062	Focus control-Wire Wound
B	100kΩ	½				Brightness control
R3A	1 Meg.	½		Bil-137 *		Vert. hold control, front
B	50kΩ	½	390036	Bil-133 *	390036	Horiz. hold control, rear
C	Shaft End			E187 *		Attach per instructions in "Concentrikit".
R4	400Ω	4	390084		10-400	Focus control-Wire Wound
R5	3000Ω	2	390039	W-5000	43-5000	Vert. linearity control-Wire Wound
R6	2 Meg.	½	390038	Q11-139	M-33-S	Height control
R7	20kΩ	½	390035	Q11-119	M-36-S	Horiz. drive control
R8	30Ω	2	390054	W-30	43-30	Horiz. centering control-Wire Wound
R9	30Ω	2	390033	W-30X15	43-30CT	Vert. centering control-Wire Wound tapped at 15Ω

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R10	3900Ω 20%	½		BTS-3900	RF Grid
R11	47kΩ 20%	½			AGC Network
R12	10kΩ 20%	½			RF Plate Coil Shunt
R13	2200Ω 20%	½		BTS-2200	RF Decoupling
R14	470Ω	½			Conv. Grid
R15	220kΩ 20%	½			Conv. Grid
R16	18kΩ	½			Conv. Plate Transformer Shunt
R17	1000Ω	½		BTS-1000	Conv. Plate Decoupling
R18	10kΩ 20%	½			Osc. Grid
R19	470Ω	½			Osc. Plate
R20	1000Ω	½	340492	BTS-1000	Decoupling
R21	1000Ω	½	340492	BTS-1000	AGC Network
R22	5600Ω	½	340072		1st Video IF Grid
R23	39Ω	½	340152		1st Video IF Cathode
R24	1000Ω	½	340492	BTS-1000	1st Video IF Decoupling
R25	15kΩ 5%	½	330732	BTS-15K-5%	2nd Video IF Grid
R26	39Ω	½	340152	BTS-1000	2nd Video IF Cathode
R27	1000Ω	½	340492	BTS-1000	2nd Video IF Decoupling
R28	1000Ω	½	340492	BTS-1000	AGC Network
R29	1000Ω	½	340492	BTS-1000	AGC Network
R30	68000Ω 5%	½	330692	BTS-68000-5%	3rd Video IF Grid Coil Shunt
R31	39Ω	½	340152		3rd Video IF Cathode
R32	3900Ω 5%	1	380632	BTA-3900-5%	3rd Video IF Plate
R33	1000Ω	½	340492	BTS-1000	3rd Video IF Decoupling
R34	180Ω	½	340312		4th Video IF Cathode
R35	10kΩ	½	340732		4th Video IF Plate Coil Shunt
R36	1000Ω	½	340492	BTS-1000	4th Video IF Decoupling
R37	2.2 Meg.	½	341292	BTS-2.2 Meg.	AGC Rect. Diode Load
R38	1 Meg.	½	341312	BTS-1 Meg.	AGC Network
R39	100kΩ	½	340972	BTS-100K	Delayed AGC Network
R40	120kΩ	½	340992	BTS-120K	Delayed AGC Network
R41	2200Ω	½	340572	BTS-2200	Voltage Divider
R42	33000Ω 5%	1	380612	BTA-3300-5%	Video Amp. Plate-See Note 1

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R43	1 Meg.	½	341312	BTS-1 Meg.	Video Output Grid
R44	3000Ω	5	394945	AB-3000	Video Output Plate-Wire Wound
R45	1 Meg.	½	341212	BTS-1 Meg.	Cathode Follower Grid
R46	10kΩ	2	397014	BT-3-10K	Cathode Follower Cathode
R47	220kΩ	½	340052	BTS-220K	DC Rest. Cathode
R48	22kΩ	½	340812	BTS-22K	Voltage Divider
R49	100kΩ	½	340972	BTS-100K	DC Rest. Plate
R50	33000Ω	½	340812	BTS-3300	DC Rest. Plate Decoupling
R51	68Ω	½	340212		Sound IF Cathode
R52	1000Ω	½	340492	BTS-1000	Sound IF Screen Decoupling
R53	1000Ω	½	340492	BTS-1000	Sound IF Plate Decoupling
R54	100kΩ	½	340972	BTS-100K	Limiter Grid
R55	1000Ω	½	340492	BTS-1000	Limiter Plate Decoupling
R56	10kΩ	1	370732		Limiter Screen
R57	4700Ω	½	340652	BTS-4700	Voltage Divider
R58	100kΩ	½	340972	BTS-100K	Disc. Diode Load
R59	100kΩ	½	340972	BTS-100K	Disc. Diode Load
R60	68kΩ	½	340932	BTS-68K	De-emphasis
R61	47kΩ	½	340892	BTS-47K	Tone Compensation
R62	15 Meg.	½	351492	BTS-15 Meg.	AF Grid
R63	470kΩ	½	341132	BTS-470K	AF Plate
R64	470kΩ	½	341132	BTS-470K	Output Grid
R65	47Ω	½	340172	BW-½-47	Output Cathode
R66	10kΩ	½	340732	BTS-10K	Decoupling
R67	1 Meg.	½	341212	BTS-1 Meg.	Sync. Amp. Grid
R68	22kΩ	1	370812	BTA-22K	Sync. Amp. Plate
R69	180kΩ	½	341032	BTS-180K	Sync. Sep. Grid
R70	10kΩ	½	340732	BTS-10K	Sync. Sep. Plate
R71	47kΩ	½	340892	BTS-47K	Voltage Divider
R72	1000Ω	½	340492	BTS-1000	Sync. Sep. Plate
R73	1 Meg.	½	341212	BTS-1 Meg.	Sync. Phase Inv. Grid
R74	1000Ω	½	340492	BTS-1000	Sync. Phase Inv. Cathode
R75	150Ω	½	340292	BW-½-150	Sync. Phase Inv. Cathode
R76	4700Ω 5%	½	330652	BTS-4700-5%	Sync. Phase Inv. Plate
R77	22000 5%	½	330572	BTS-2200-5%	Sync. Phase Inv. Plate
R78	100kΩ 5%	1	380972	BTA-100K-5%	Horiz. AFC Plate
R79	47kΩ	½	340892	BTS-47K	Phase Meter
R80	1000Ω	½	340492	BTS-1000	Horiz. AFC Cathode
R81	22kΩ	½	340812	BTS-22K	Voltage Divider
R82	22kΩ	½	340812	BTS-22K	Integrator
R83	4700Ω	½	340652	BTS-4700	Integrator
R84	1.5 Meg. 5%	½	331253	BTS-1.5 Meg. 5%	Vert. Osc. Grid
R85	100kΩ	1	370972	BTA-100K	Vert. Osc. Plate Decoupling
R86	470kΩ	½	341132	BTS-470K	Vert. Discharge Plate
R87	4.7 Meg.	½	341372	BTS-4.7 Meg.	Vert. Output Grid
R88	2700	½	340532	BW-½-270	Vert. Output Cathode -See Note 1
R89	6800Ω	½	340692	BTS-6800	Peaking
R90	10kΩ	3	397043	AB-10000	Vert. Output Decoupling
R91	56kΩ	½	340912	BTS-56K	Feedback
R92	220kΩ	½	341052	BTS-220K	Horiz. Phase Det. Load
R93	220kΩ	½	341052	BTS-220K	Horiz. Phase Det. Load
R94	100kΩ 5%	½	330972	BTS-100K-5%	Horiz. Phase Det. Load
R95	100kΩ 5%	½	330972	BTS-100K-5%	Horiz. Phase Det. Load
R96	4700Ω	1	370652	BTA-4700	Horiz. AFC Plate Decoupling
R97	47kΩ	½	340892	BTS-47K	Horiz. Osc. Grid
R98	470kΩ 5%	½	331132	BTS-470K-5%	Horiz. Discharge Plate
R99	470kΩ	1	371132	BTA-470K	Feedback
R100	470kΩ	1	371132	BTA-470K	Feedback
R101	18kΩ	½	340792	BTS-18K	Horiz. Peaking
R102	470kΩ	½	341132	BTS-470K	Horiz. Output Grid
R103	100Ω	1	370252	BW-1-100	Horiz. Output Cathode
R104	10kΩ	2	397070	BT-2-10K	Horiz. Output Screen
R105	7500Ω 5%	25	394007		Damper Filter-Wire Wound
R106	100kΩ	1	370972	BTA-100K	Voltage Divider
R107	22kΩ	2	397034	BT-2-22K	Scanning Interlock Cathode
R108	1 Meg.	½	341212	BTS-1 Meg.	Scanning Interlock Grid
R109	1 Meg.	½	341212	BTS-1 Meg.	Scanning Interlock Grid
R110	390kΩ 5%	1		BTA-390K	HV Osc. Grid
R111	220kΩ	1		BTA-220K	Bleeder
R112	18kΩ	1		BTA-18K	HV Osc. Cathode
R113	330Ω 20%	½			Parasitic Supp.
R114	330kΩ	½		BTS-330K	HV Output Grid
R115	220kΩ 5%	½		BTS-220K-5%	HV Output Grid
R116	390Ω	2		BW-2-390	HV Output Cathode
R117	47kΩ 5%	½		BTS-47K-5%	Bias Filter
R118	330Ω 20%	½			Parasitic Supp.
R119	2000Ω	10	394052		Surge Limiter-Wire Wound
R120	2000Ω	10	394052	AB-200	Filter-Wire Wound
R121	2500Ω	10	394044	AB-2500	Filter-Wire Wound
R122	47Ω	2	397057	BW-2-47	Focus Coil Shunt
R123A	105Ω	5	394052	AB-100	Focus Coil Shunt-Wire Wound
B	600Ω	6		AB-600	Filter-Wire Wound
R124A	1550Ω	7	394043		Bias Network-Wire Wound
B	3100Ω	7			Bias Network-Wire Wound
R125	180Ω	1	370312	BW-1-180	Bias Network
R126	1 Meg.	½	341212	BTS-1 Meg.	Video Coupling
R127	100kΩ	½	340972	BTS-100K	Horiz. Osc. Grid-See Note 2

Note 1. Some models use two resistors in parallel to obtain required resistance and wattage.
Note 2. Not used in all models.

SPEAKER

ITEM No.	RATINGS FIELD RES.	V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	PM	4Ω	180050	ST-10D MOD. P12-T	12A3A	① Replace output transformer to match 6-8Ω voice coil.
	CONE DIA.	V. C. DIA.				
SP2	11 7/8 "	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC at 1.12A	730VCT .070ADC	5VAC at 2A	5VAC at 2A SEC. 4 6.3VAC at 10A	730014			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	3.7Ω	9.5Ω	730014	A-8110	A-3002		Hor. Block Osc. Trans.
T3	162Ω	1350Ω	738004	A-8121	A-4000	TBO-1	Vert. Block Osc. Trans.
T4	430Ω	SEC. 1	738012 or	A-8117 ①	–	TFB-1 ①	Hor. Output Trans.
	Tap. at 175Ω	10.4Ω	738013				
		Tap. at .6Ω					
		SEC. 2					
		0Ω					
T5	580Ω	7.1Ω	738010	A-8115	A-3035	TSO-1	Vert. Output Trans.
T6A	15Ω		Part of Proj. unit				Hor. Deflection Coil
B	60Ω						Vert. Deflection Coil
T7	290Ω		Part of Proj. unit.				Focus Coil
T8	145Ω	120Ω	Part of HV unit				HV Block Osc. Trans.

① Do not use high voltage tap or HV Filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T9	4800Ω	4Ω	320Ω	.6Ω	734018	A-3849	A-2902	RO-9 ②	② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	MEISSNER PART No.	NOTES
L1	Ant. Coils	0Ω				Part of tuner.
L2	RF Plate, Mixer Grid & Osc. Coils	0Ω				Part of tuner.
L3	Fil. Choke	0Ω				Part of tuner.
L4	Fil. Choke	0Ω				Part of tuner.
L5	1st Video IF	0Ω		720056		Part number includes L6.
L6	Video Coupling	0Ω				
L7	2nd Video IF	.2Ω	0Ω	720042		
L8	3rd Video IF	.2Ω		720042		
L9	RF Choke	3Ω		705014		20 microhenries.
L10A	4th Video IF	.2Ω		720078		
B	4th Video IF			720079		
L11	Peaking	4.2Ω		708097		45 microhenries, white identification dot.
L12A	5th Video IF	.2Ω		720078		
B	5th Video IF			720079		
L13	Sound Trap	4.2Ω		708097		45 microhenries, white identification dot.
L14	Peaking	4.2Ω		708097		45 microhenries, yellow identification dot.
L15	Peaking	8Ω		708094		125 microhenries, green identification dot.
L16	Peaking	8Ω		708094		125 microhenries, green identification dot.
L17	RF Choke	3Ω		705014		20 microhenries
L18	Sound IF	2.2Ω	2.2Ω	720081		
L19A	Disc. Trans.	1.8Ω	1.8Ω	708017		
B	Disc. Trans.			708018		
L20	RF Choke	50Ω		705009		3 millihenries
L21	Width Cont.	.3Ω		708082		
L22	Hor. Linearity	40Ω		708003		

SELENIUM RECTIFIER

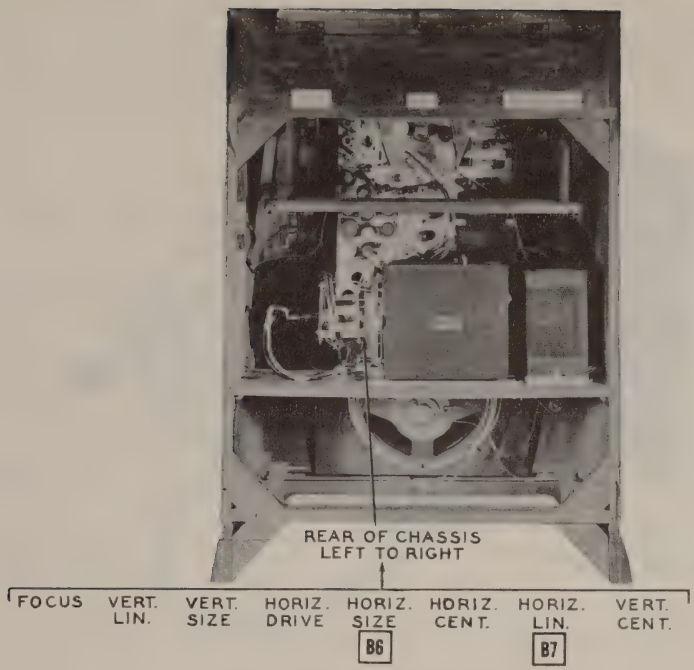
ITEM No.	RATING CURRENT	REPLACEMENT DATA EMERSON PART No.	SYLVANIA PART No.		NOTES
M1	.220A	817004	NF-5		
M2	.220A	817004	NF-5		
M3	.150A	817005	NE-5		
M4	.150A	817005	NE-5		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.		NOTES
M5	Bayonet	6-8	.15	Brown	807000		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M6	RF Tuner	470452	
M7	Ballast Tube	397023	
M8	Fuse	808050	Type AGC .25A
M9	Switch	510046	Microswitch
M10	HV Trans. Assembly		Includes trans., 3-EY51 rectifier, filter, capacitors and resistor.
	Cabinet	140227	
	Cabinet Back	560075	
	High Voltage Unit	470419	
	Projection Unit	470421	
	Mirror	635013	
	Screen	450018	
	Escutcheon	520103	Channel selector
	Socket	585039	Includes cable assembly for 3NP4
	Knob	450044	Fine tuning
	Knob	450041S	Volume, brightness, Hor. hold
	Knob	450045	Contrast, focus, Vert. hold
	Knob	450049S	Channel selector (with hole)
	Knob	450042S	Channel selector
	Striker	410565	Striker for M9
	Trimmer	900044	Sound trap (3-35MMF)
	Trimmer		HV Blocking Osc. (110-560MMF) MICA



CABINET-REAR VIEW

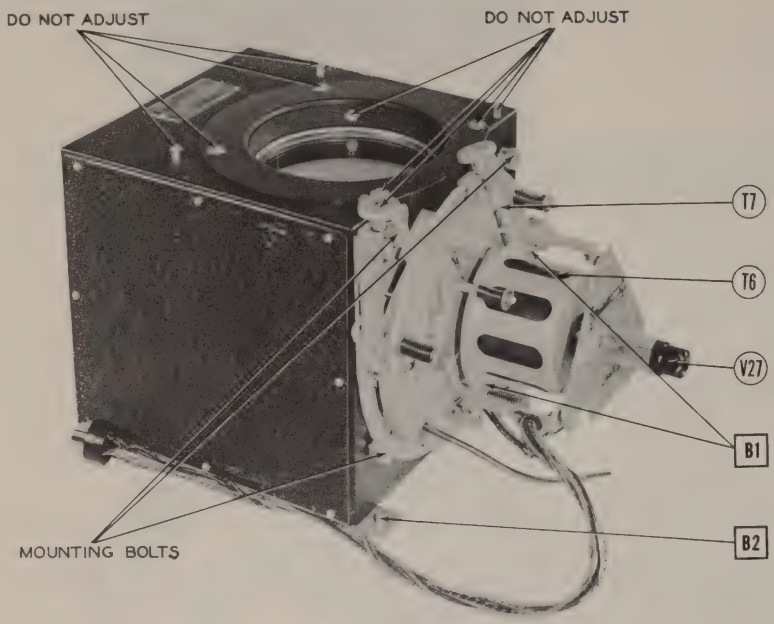
DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove ten phillips head screws holding rear cover. Remove cover.
3. Remove projection tube base socket.
4. Remove projection tube yoke plug from TV chassis.
5. Remove plug from TV chassis leading to HV chassis.
6. Remove six 1/4" hex head bolts holding projection tube assembly.
7. Remove four 1/4" hex head bolts holding HV chassis. Remove projection tube assembly and HV chassis together.
8. Remove speaker plug.
9. Remove cabinet lamp socket.
10. Remove two phillips head screws holding antenna terminal strip.
11. Remove two phillips head screws holding power interlock plug.
12. Remove two 1/4" hex head bolts holding automatic off-on switch to cabinet.
13. Remove two wing nuts from inside front panel. Swing panel open.
14. Support TV chassis. Remove four 7/16" hex head bolts holding TV chassis. Remove chassis.
15. Remove four 5/16" hex nuts holding speaker. Remove speaker.

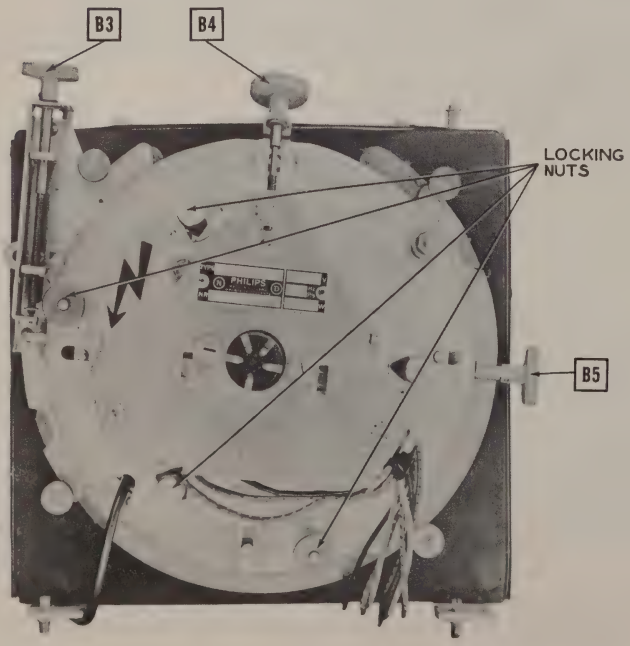
HORIZONTAL WIDTH AND LINEARITY ADJUSTMENTS

Adjust the width slug (B6) until the picture fills the mask horizontally.

Adjust the horizontal linearity slug (B7) and the horizontal drive control for best linearity from left to right. If the horizontal drive control is changed, readjustment of B6 may be necessary.



PROJECTION UNIT



DEFLECTION AND FOCUS COIL ASSEMBLY

OPTICAL SYSTEM ADJUSTMENTS

This operation should be necessary only when replacing the 3NP4 or the focus and deflection coils.

Before turning on the set, turn both the contrast and brightness control full off. After about one minute slowly advance the controls for a medium bright raster. (If a spot or line appears on the screen, immediately turn brightness control full off and determine cause of sweep failure).

Adjust the focus control for the best possible focus on the face of the tube. This is necessary since no amount of mechanical focusing can correct a defocused image on the face of the tube.

Adjust the centering controls to center picture on the face of the tube. If mechanical centering is required in addition to the electrical centering, adjust the two centering screws B1. While adjusting these screws, be careful not to force the focus coil against the neck of the tube by tilting it excessively in either direction. With the raster centered on the face of the tube the image should be centered on the viewing screen. Many test patterns have wedges or arrows which indicate the edges of the picture. If a pattern having these marks is being received, they can be used for checking the centering. If picture is not properly centered on the viewing screen loosen the three mounting bolts of the projection unit and adjust the three leveling screws B2 to center the pattern on the viewing screen.

If the pattern tilts on the screen, loosen the four mounting bolts and rotate the mounting assembly slightly as required. Tighten the mounting bolts.

Check to see that the pattern is still in sharp focus on the face of the tube, The picture should also be in focus on the viewing screen. If it is not, loosen the five locking nuts about one turn each. Adjust the overall focusing adjustment B3 to focus the center of the picture. Adjust the horizontal focusing adjustment B4 for equal focus in the areas on each side of the center. Adjust the vertical focusing adjustment B5 for equal focus above and below the center. After each adjustment of B4 and B5 check the overall focus adjustment B3. By careful adjustment of B3, B4, and B5, the entire pattern can be brought into focus. After completing the adjustments tighten the five locking nuts.

CAUTION- The screws on top of the projection unit are adjustments for the optical system inside the unit and UNDER NO CIRCUMSTANCES should they be disturbed. These adjustments or replacement of the optical parts must be done at the factory.

HIGH VOLTAGE OSCILLATOR ADJUSTMENTS

The blocking oscillator frequency in the high voltage supply should be maintained at 1000 ± 70 cycles. Unless a component that determines frequency has been altered or replaced, adjustment is not usually necessary. The frequency should be checked if the 6SR7 tube (V24) or any of the associated parts have been replaced.

The 1000 cycle adjustment controls the oscillator frequency which determines the filament supply of the three sealed rectifiers but has little effect on current regulation and voltage output.

Insert a 10Ω resistor in the B+ lead as shown on the schematic and connect the vertical amplifier of the scope between point E and the chassis. Feed a 1000 cycle signal from an audio generator to the horizontal sweep amplifier of the oscilloscope. Adjust B8 for a single stable Lissajous pattern as shown in figure 6.

Be sure to remove the 10Ω resistor after the adjustment is made.

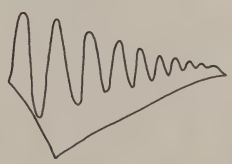
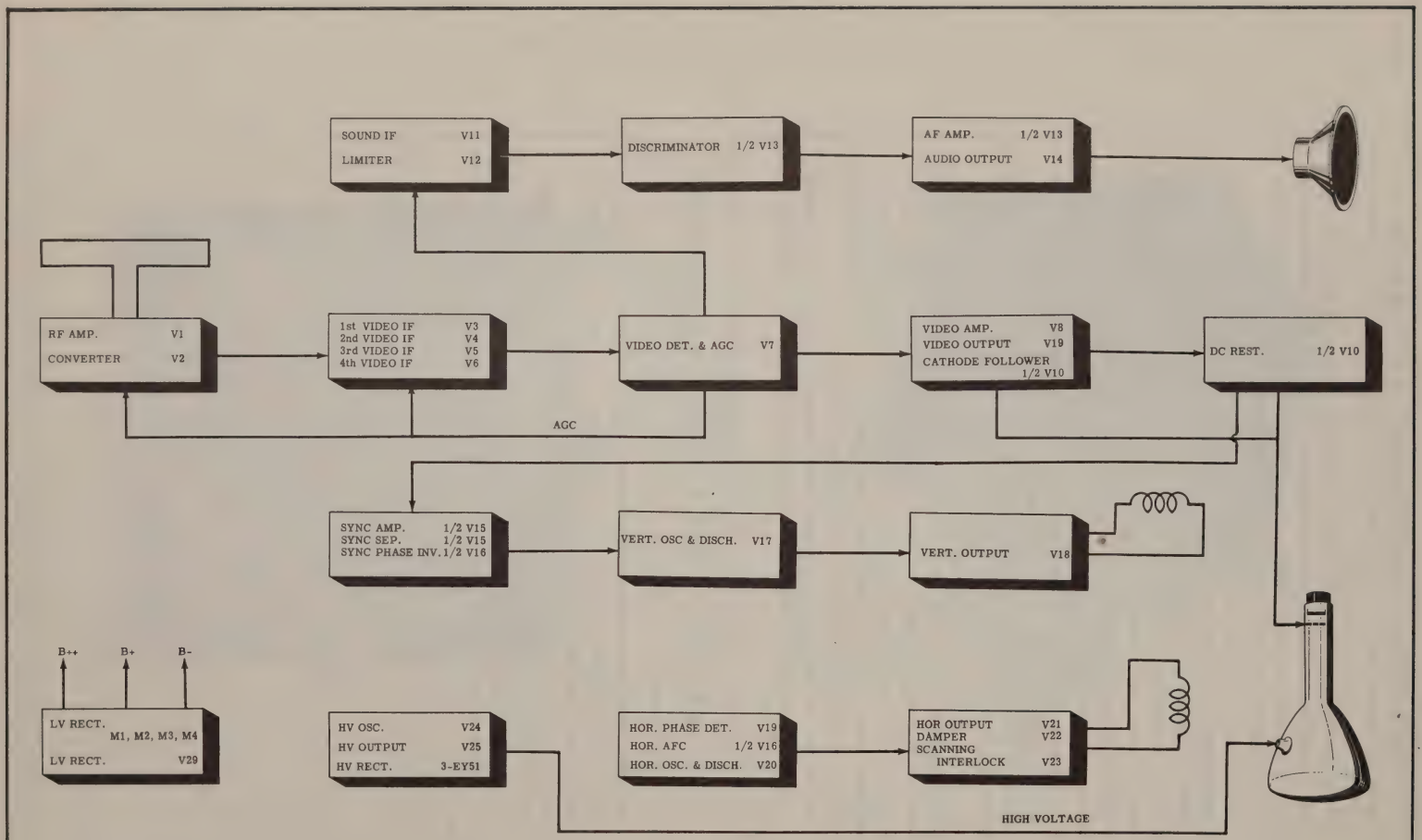
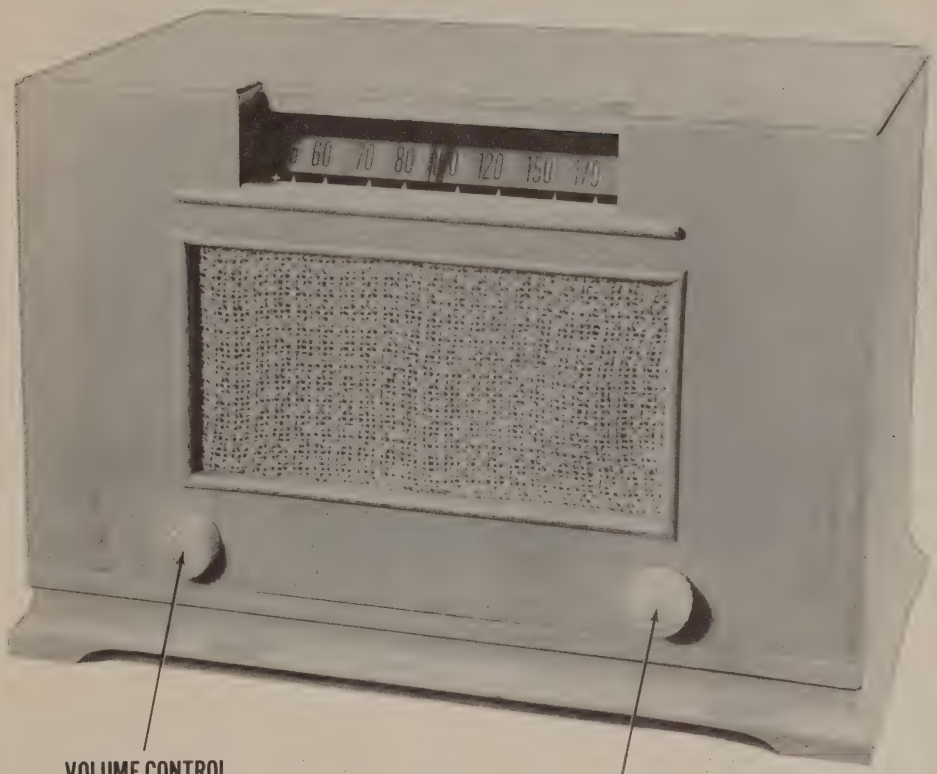


FIG. 6



BLOCK DIAGRAM

ESPEY
MODELS 18B, 524, 751, 7552



ESPEY
MODELS 18B, 524, 751, 7552

ESPEY MODEL 18B

TRADE NAME	Espey, Models 18B, 524, 751, 7552
MANUFACTURER	Espey Mfg. Co., Inc., 528 E. 72nd St., New York 21, New York
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna (Model 524 Includes Electric Clock)
TUBES (FIVE)	Types 14Q7 Converter, 14A7 IF Amp., 14B6 DET-AVC-AF, 50A5 Power Output, 35Y4 Rectifier
POWER SUPPLY	110-120 Volts AC - DC
RATING	.25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer 1 7/16 inches to the right of the left hand end of the dial backplate.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully closed.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1500KC	1500KC	"	A5, A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ESPEY PART No.	STANDARD REPLACEMENT		
V1	Converter	14Q7	14Q7	8AL	
V2	IF Amp.	14A7/12B7	14A7/12B7	8V	
V3	DET.-AVC-AF	14B6	14B6	8W	
V4	Power Output	50A5	50A5	6AA	
V5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ESPEY PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	150		PRSA150/30-50	EDL5315		TA-530	Filter-Blue
B	50	150						Filter-Red
C2	.002	200		P688-002	PTE6D2	GP2M-002	TM-22	Ext. Ant. Isolation-Note 1
C3	250	500		1468-00025	5W5T25	GP2K-250	1FM-325	Osc. Grid Cap.
C4	.025	400		P488-025	PTE4S2		TM-12	AVC Filter-See Note 2
C5	250	500		1468-00025	5W5T25	GP2K-250	1FM-325	Diode RF Filter
C6	.005	400		P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C7	250	500		1468-00025	5W5T25	GP2K-250	1FM-325	AF Amp. Plate Bypass
C8	.025	400		P488-025	PTE4S2		TM-12	Audio Coupling
C9	6800	500		1467-007	1D3D7	GP2-334-0068	1FM-27	Output Plate Bypass-See Note 3
C10	.25	200		P488-25	GT2P25		72P53	Line Isolation
C11	.05	400		P488-05	PTE4S5		TM-15	Line Filter

Note 1. Not used in all models.
Note 2. Some models use .005MFD in this application.
Note 3. Some models use .02MFD in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	500KΩ	½	9.179	Q13-133	M-60-Z	Volume control
B	Switch		Not Req.	76-1	SW-A	Attach to R1A per instructions

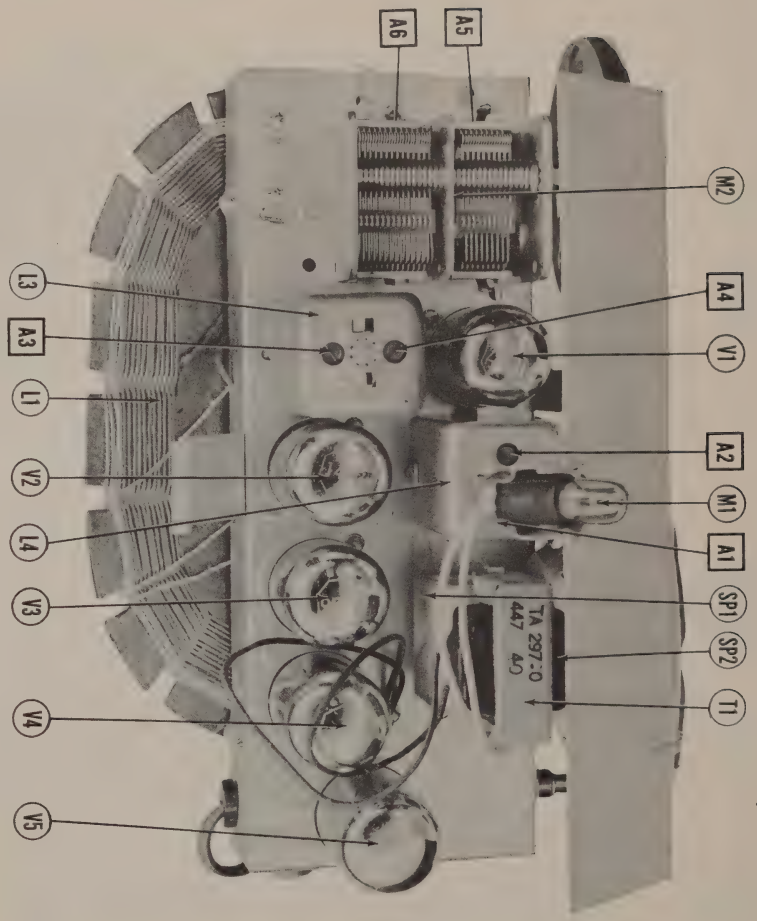
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	10 Meg.	½		BTS-10 Meg.	AVC Network
R4	3.3 Meg.	½		BTS-3.3 Meg.	AVC Network
R5	10 Meg.	½		BTS-10 Meg.	AF Grid
R6	470KΩ	½		BTS-470K	AF Plate
R7	470KΩ	½		BTS-470K	Output Grid
R8	150Ω	½		BW-½-150	Output Cathode
R9	220KΩ	½		BTS-220K	Isolation
R10	1000Ω	2		BW-2-1000	Filter

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ESPEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.5KΩ	3.1Ω	150Ω	.5Ω		A-3876 *	A-2928 *	RO-2 *	* Bend mounting tabs down and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ESPEY PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-105 #		
SP1	PM	3.3Ω		MOD. P5-X	5A07 #	# Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	4 3/4"	9/16"				

R F COILS

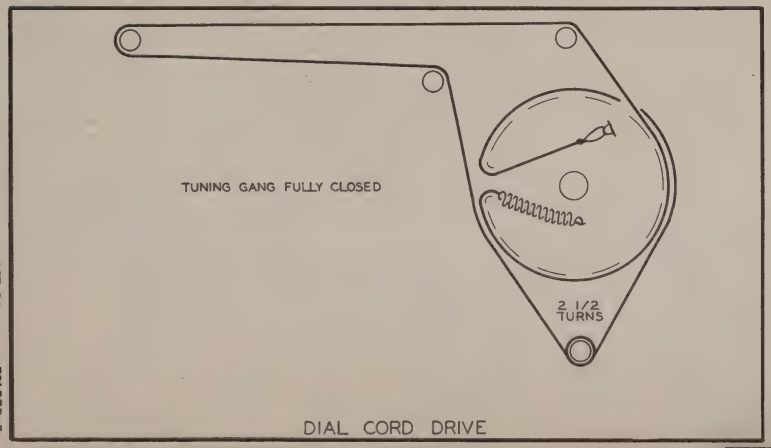
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ESPEY PART No.	REPLACEMENT DATA MEISSNER PART No.	
L1	Loop Ant.	1.2Ω				
L2	Osc. Coil	.5Ω	6.5Ω		14-1073	
L3	Input IF	9Ω	9Ω		16-6658	
L4	Output IF	9Ω	9Ω †		16-6670	† 47KΩ resistor in series with secondary.

DIAL LIGHTS

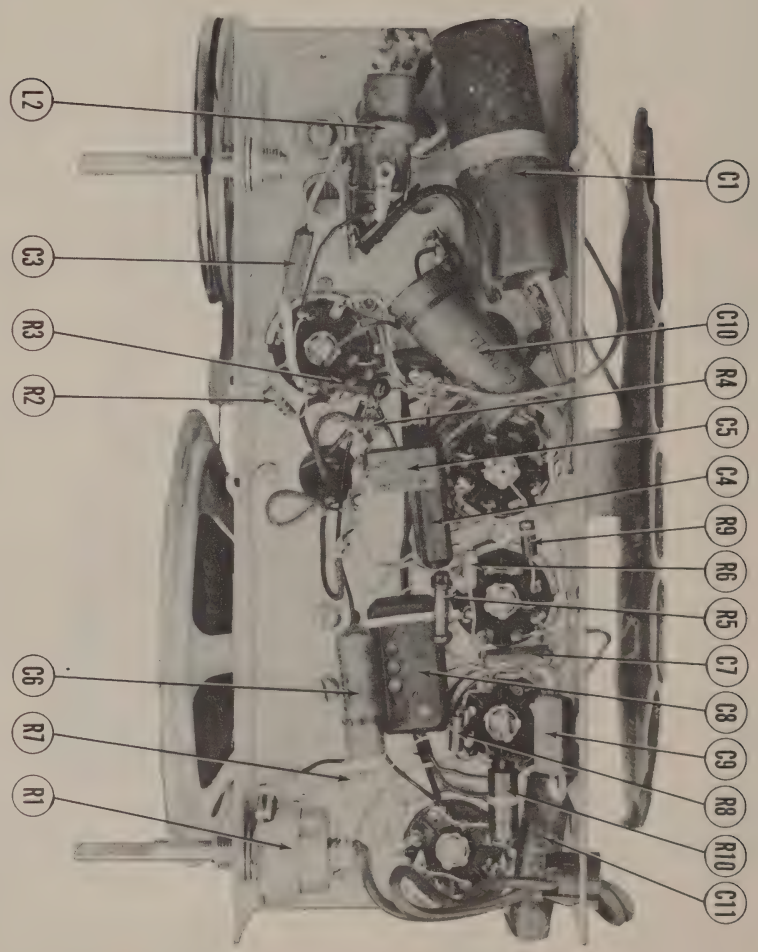
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ESPEY PART No.		NOTES
M1	Bayonet	6-8	.15	Brown			Type #47

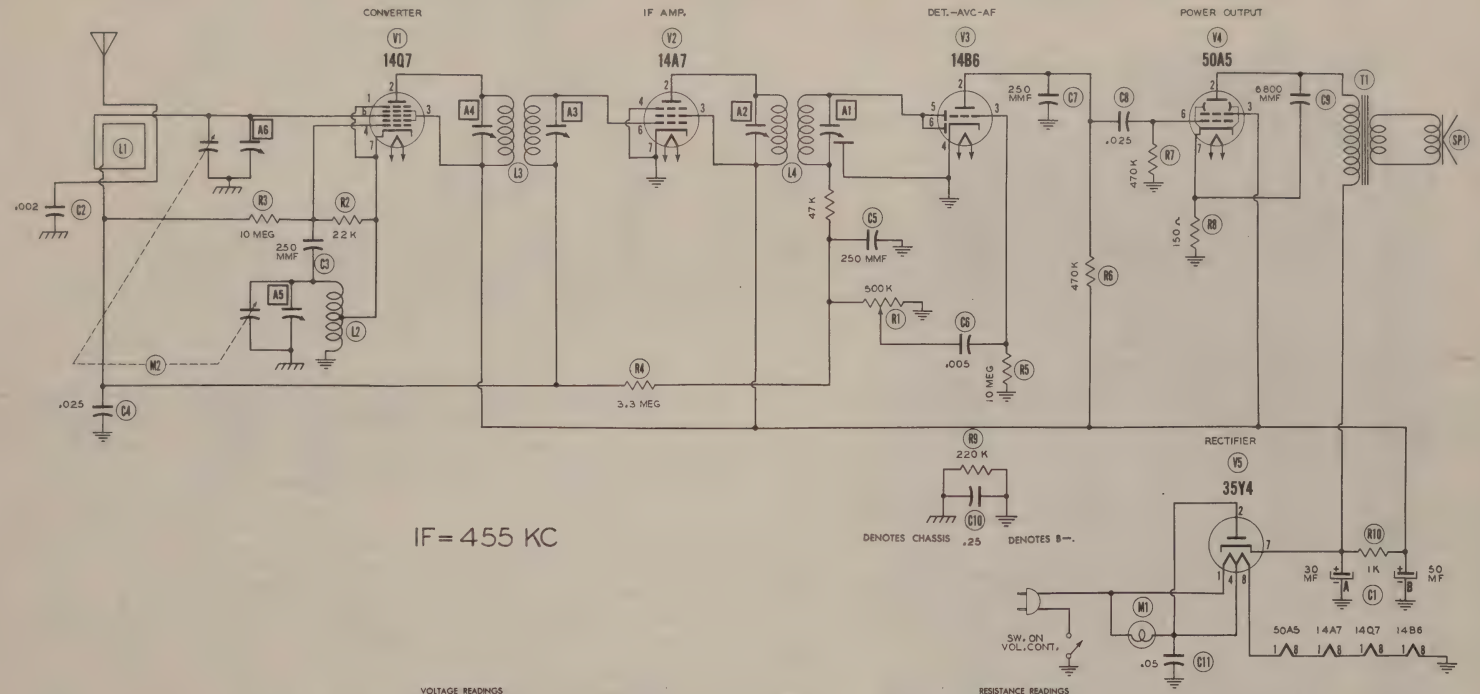
MISCELLANEOUS

ITEM No.	PART NAME	ESPEY PART No.	NOTES
M2	2 Gang Var. Cap.		(28-467MMF, 29-206MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	14Q7	24VAC	95VDC	95VDC	8-8.4VDC	0V.	-.3VDC	0V.	13VAC
V 2	14A7	38VAC	95VDC	95VDC	0V.	0V.	-.3VDC	0V.	24VAC
V 3	14B6	12VAC	60VDC	-.5VDC	0V.	-.6VDC	-.6VDC	0V.	0V.
V 4	50A5	88VAC	115VDC	95VDC	0V.	0V.	0V.	7.1VDC	38VAC
V 5	35Y4	117VAC	113VAC	0V.	113VAC	117VAC	130VDC	120VDC	88VAC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	14Q7	27Ω	†1000Ω	†1000Ω	22KΩ	.5Ω	3 Meg.	.5Ω	14Ω
V 2	14A7	40Ω	†1000Ω	†1000Ω	0Ω	220KΩ	3 Meg.	0Ω	27Ω
V 3	14B6	14Ω	†470KΩ	10 Meg.	0Ω	500KΩ	500KΩ	0Ω	0Ω
V 4	50A5	90Ω	†150Ω	†1000Ω	0Ω	0Ω	470KΩ	150Ω	40Ω
V 5	35Y4	125Ω	120Ω	Inf.	120Ω	125Ω	110KΩ	110KΩ	90Ω

† MEASURED FROM PIN 7 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

KNIGHT
MODEL 93-380

KNIGHT
MODEL 93-380

KNIGHT MODEL 93-380

TRADE NAME	Knight, Model 93-380
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Illinois
TYPE SET	AC Operated 4 Channel Audio Amplifier
TUBES (TEN)	Types 6SC7 Mic. Pre Amp., 6SC7 1st AF Amp., 6SL7GT 2nd AF-Phase Inverter, 6SN7GT Driver, (2) 807 Power Output, (2) 5U4G Rectifier, 5Y3GT Bias Rectifier, 5Y3GT LV Rectifier
POWER SUPPLY	110-130 Volts AC RATING 1.02 Amp. at 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

KNIGHT
MODEL 93-380

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Mic. Pre Amp.	6SC7	6SC7	8S	
V2	1st AF Amp.	6SC7	6SC7	8S	
V3	2nd AF Amp.-Phase Inverter	6SL7GT	6SL7GT	8BD	
V4	Driver	6SN7GT	6SN7GT	8BD	
V5	Power Output	807	807		
V6	Power Output	807	807		
V7	HV Rectifier	5U4G	5U4G	5T	
V8	HV Rectifier	5U4G	5U4G	5T	
V9	Bias Rectifier	5Y3GT	5Y3GT	5T	
V10	LV Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	125	350		AFH25H	UP12535		EL-125	Filter
C2	125	350		AFH25H	UP12535		EL-125	Filter
C3A	10	450		AF222J	UP11145		EL-310	■ Filter
B	10	450						▲ Decoupling
C	10	450						Decoupling
C4	8	450		PRS450/8	BR845A		UT-8	Decoupling
C5	250	50		AF50B	BRH5025			Bias Filter
C6	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C7	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C8	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C9	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C10	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C11	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C12	.1	600		P688-1	PTE6P1		TM-1	Audio Coupling
C13	.005	600		P688-005	PTE6D5	811-005	TM-25	Tone Compensation
C14	.005	600		P688-005	PTE6D5	811-005	TM-25	Tone Compensation
C15	500	500		1468-0005	5W5T5	GP2K-500	1FM-35	Tone Compensation
C16	100	500		1468-0001	5W5T1	GP1K-100	1FM-31	2nd AF Amp. Plate Bypass
C17	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C18	.05	600		P688-05	PTE6S5		TM-15	Audio Coupling
C19	.01	600		P688-01	PTE6S1	821-01	TM-11	Fixed Trimmer
C20	.5	200		P288-5	GT2P5		TC-5	Fixed Trimmer
C21	.05	600		P688-05	PTE6S5		TM-15	Line Filter

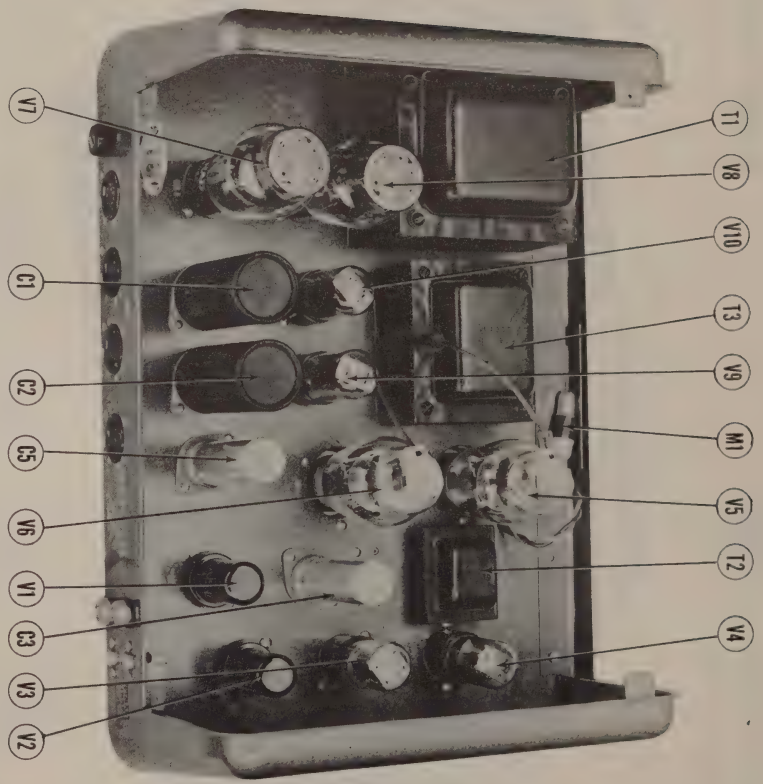
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	AM-60-Z	Mic. #1 Volume control
B	Shaft			Not Req.	KSS-3	Attach to R1A per instructions
R2A	500KΩ	½		Q13-133	AM-60-Z	Mic. #2 Volume control
B	Shaft			Not Req.	KSS-3	Attach to R2A per instructions
R3A	1 Meg.	½		Q19-137X	AT-112	Phono volume control, tapped at 500KΩ
B	Shaft			Not Req.	KSS-3	Attach to R3A per instructions
R4A	500KΩ	½				Tone control } Dual Control
B	2.5 Meg.	½				Tone control }

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
R5	3.3 Meg.	½		BTS-3.3 Meg.	Mic. Pre Amp. Grid
R6	470KΩ	½		BTS-470K	Mic. Pre Amp. Plate
R7	3.3 Meg.	½		BTS-3.3 Meg.	Mic. Pre Amp. Grid
R8	470KΩ	½		BTS-470K	Mic. Pre Amp. Plate
R9	1000Ω	1		BTS-1000	1st AF Cathode
R10	68KΩ	½		BTA-68K	1st AF Plate
R11	33KΩ	½		BTS-33K	Decoupling
R12	10KΩ	½		BTS-10K	Decoupling
R13	10KΩ	½		BTS-10K	Decoupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	
R14	33KΩ	½		BTS-33K	Tone Compensation
R15	22KΩ	½		BTS-22K	2nd AF Grid
R16	330KΩ	½		BTS-330K	2nd AF Plate
R17	4700Ω	½		BTS-4700	2nd AF Cathode
R18	15Ω	½		BW-½-15	2nd AF Cathode
R19	4700Ω	½		BTS-4700	Phase Inv. Cathode
R20	330KΩ	½		BTS-330K	Phase Inv. Plate
R21	27KΩ	½		BTS-27K	Phase Inv. Grid
R22	470KΩ	½		BTS-470K	Driver Grid
R23	470KΩ	½		BTS-470K	Driver Grid
R24	680Ω	1		BTA-680	Driver Cathode
R25	560Ω	½		BTS-560	Feedback
R26	470Ω	2		BW-2-470	Filter
R27	1000Ω	10		AB-1000	Bias Network-Wire Wound
R28	500Ω	10		AB-500	Bias Network-Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	130VAC or 117 VAC at 1.02A	820VCT .042ADC and 520 VCT at .018ADC	150VCT .034ADC	5VAC at 6A	LP-0212			
		SEC. 4	SEC. 5	SEC. 6				
		5VAC at 2A	5VAC at 2A	6.3VAC at 3.6A				

TRANSFORMER (DRIVER)

ITEM No.	RATING			REPLACEMENT DATA				INSTALLATION NOTES
	TURNS RATIO PRI. TO SEC.	DC RES. PRI.	DC RES. SEC.	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T2	2.5 to 1	1100Ω CT	188Ω CT	LD-0015				* Sec. #2 is used as 600Ω auxiliary output or as booster input.
			SEC. 2					
			24Ω *					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T3	3.3KΩ CT	500Ω 250Ω 66Ω 16Ω 8Ω 4Ω	180Ω CT	26Ω 15Ω 3.5Ω .6Ω .45Ω .3Ω	LO-0119	A-3878 #	A-3133 †	BO-9 †	† Drill new mounting holes. # Drill one new mounting hole.

DIAL LIGHTS

SET 90

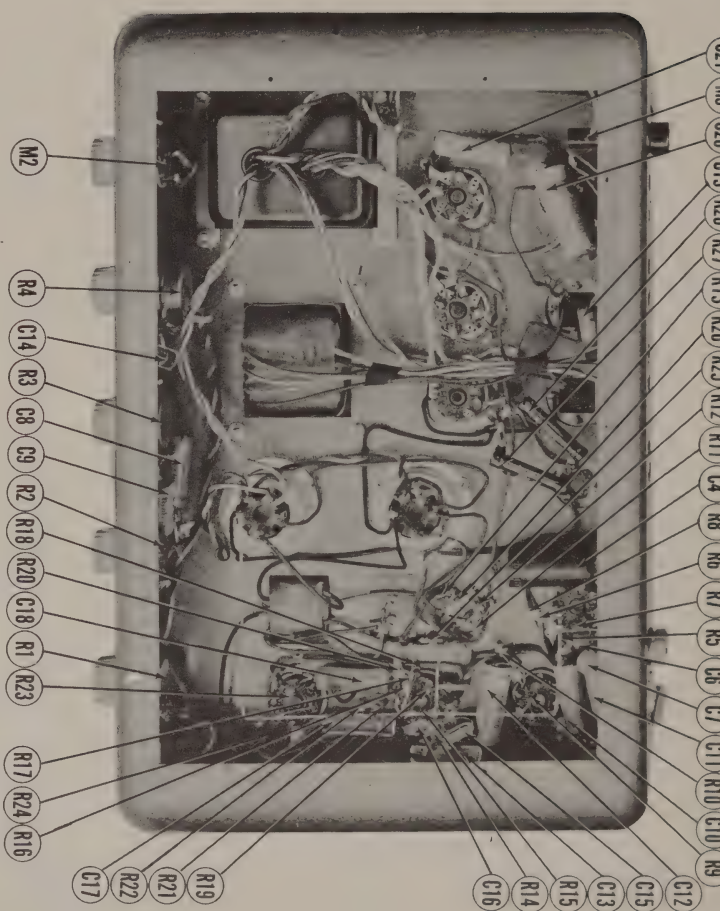
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA KNIGHT PART No.		NOTES
M1	Bayonet	6-8	.25	Blue			Type #44

MISCELLANEOUS

FOLDER 8

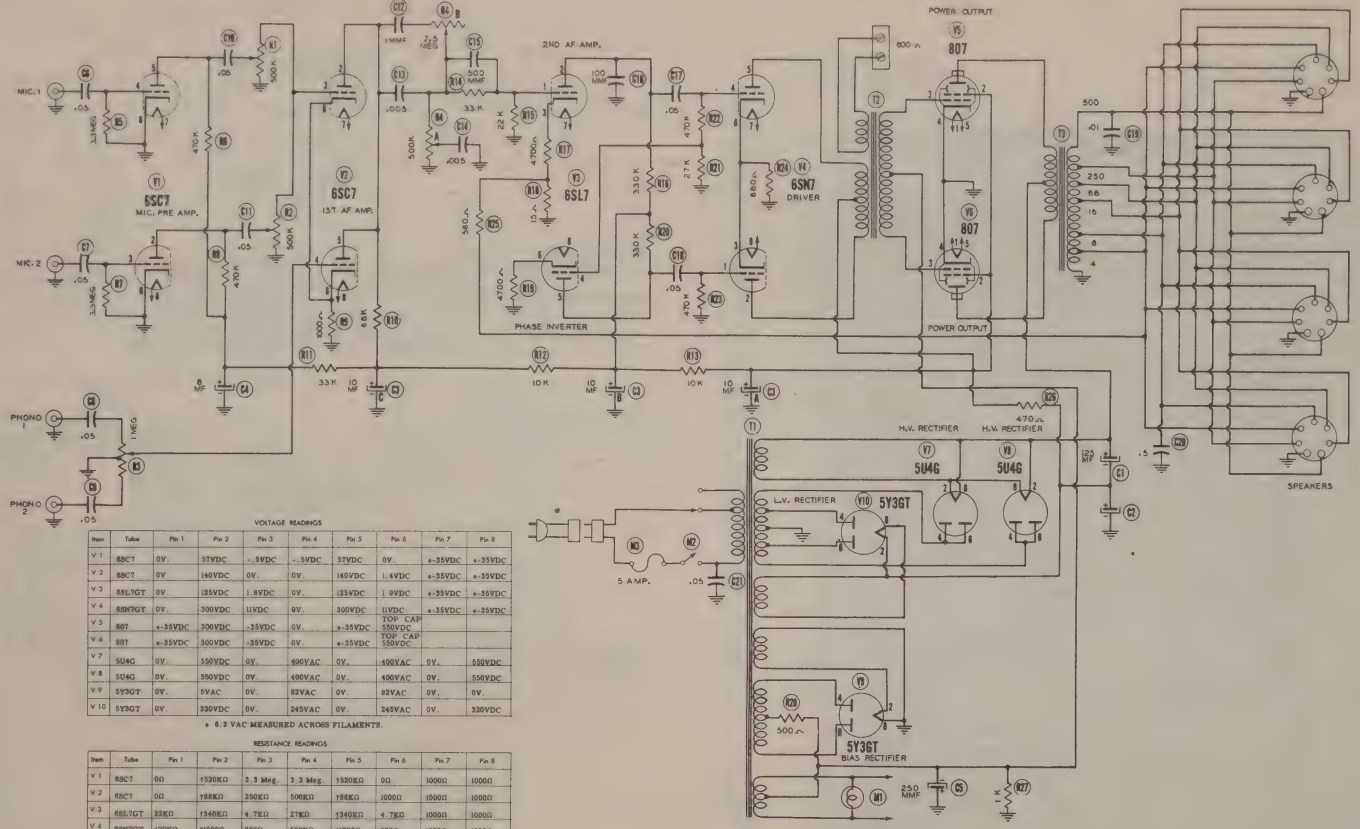
ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M2	Switch		On-Off
M3	Fuse		Type MTH 5 Amp.

CHASSIS—BOTTOM VIEW



KNIGHT MODEL 93-380

KNIGHT MODEL 93-380



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0V.	57VDC	-.5VDC	-.5VDC	57VDC	0V.	+-35VDC	+-35VDC
V 2	6SC7	0V	140VDC	0V.	0V.	140VDC	1.4VDC	+-35VDC	+-35VDC
V 3	6SL7GT	0V.	125VDC	1.8VDC	0V.	125VDC	1.8VDC	+-35VDC	+-35VDC
V 4	6SN7GT	0V.	300VDC	11VDC	0V.	300VDC	11VDC	+-35VDC	+-35VDC
V 5	807	+-35VDC	300VDC	-35VDC	0V.	+-35VDC	TOP CAP 550VDC		
V 6	807	+-35VDC	300VDC	-35VDC	0V.	+-35VDC	TOP CAP 550VDC		
V 7	5U4G	0V.	550VDC	0V.	490VAC	0V.	490VAC	0V.	550VDC
V 8	5U4G	0V.	550VDC	0V.	490VAC	0V.	490VAC	0V.	550VDC
V 9	5Y3GT	0V.	5VAC	0V.	82VAC	0V.	82VAC	0V.	0V.
V 10	5Y3GT	0V.	320VDC	0V.	245VAC	0V.	245VAC	0V.	320VDC

♦ 6.3 VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0Ω	†520KΩ	3.3 Meg.	3.3 Meg.	†520KΩ	0Ω	1000Ω	1000Ω
V 2	6SC7	0Ω	†88KΩ	250KΩ	500KΩ	†88KΩ	1000Ω	1000Ω	1000Ω
V 3	6SL7GT	22KΩ	†340KΩ	4.7KΩ	27KΩ	†340KΩ	4.7KΩ	1000Ω	1000Ω
V 4	6SN7GT	470KΩ	†1000Ω	680Ω	500KΩ	†1000Ω	680Ω	1000Ω	1000Ω
V 5	807	1000Ω	†470Ω	1000Ω	0Ω	1000Ω	TOP CAP #800Ω		
V 6	807	1000Ω	†470Ω	1000Ω	0Ω	1000Ω	TOP CAP #630Ω		
V 7	5U4G	Inf.	320KΩ	Inf.	30Ω	Inf.	30Ω	Inf.	320KΩ
V 8	5U4G	Inf.	320KΩ	Inf.	32Ω	Inf.	32Ω	Inf.	320KΩ
V 9	5Y3GT	Inf.	1Ω	Inf.	1.5KΩ	Inf.	1.5KΩ	Inf.	0Ω
V 10	5Y3GT	Inf.	120KΩ	Inf.	10Ω	Inf.	18Ω	Inf.	120KΩ

† MEASURED FROM PIN 8 OF V10.
♦ MEASURED FROM PIN 8 OF V8.

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PHOTOFACT* Folder

RCA VICTOR MODELS
8PCS41, B, C, 9PC41A, B, C, 648PTK, PV, 741PCS

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MODEL 8PCS41

RCA VICTOR MODELS
8PCS41, B, C, 9PC41A, B, C,
648PTK, PV, 741PCS

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Date 3/50 Set No. 90—Folder No. 9

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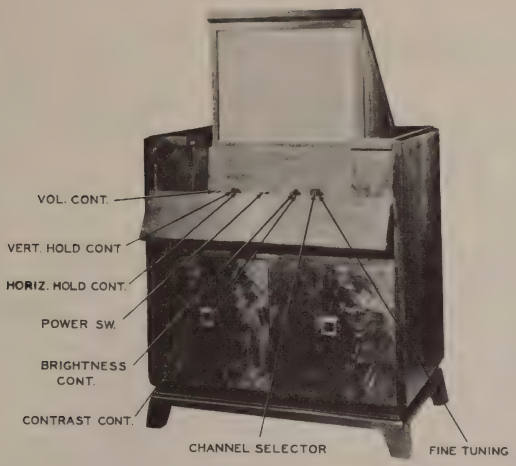

TRADE NAME	RCA VICTOR					
MODEL	TV CHASSIS	OPTICAL UNIT	HORIZ. DEFL.	HIGH VOLT.	RADIO	AUDIO AMP.
8PCS41	KCS24B-1	KRK1A-1	KRS20A-1	KRS21A-1		RS123C
8PCS41-B	KCS24C-1	KRK4	KRS20B-1	KRS21A-1		RS123C
8PCS41-C	KCS24C-1	KRK1A-1	KRS20B-1	KRS21A-1		RS123C
9PC41A	KCS24C-1	KRK4	KRS20B-1	KRS21A-1		RS123C
9PC41B, C	KCS24D	KRK4	KRS20B-1	KRS21A-1		RS123C
648PTK	KCS24-1	KRK1-1	KRS20-1	KRS21-1	RK121A	RS123A
648PV	KCS24A-1	KRK1A	KRS20-1	KRS21A-1	RK121A	RS123B
741PCS	KCS24B-1	KRK1A-1	KRS20A-1	KRS21A-1		RS123C

MANUFACTURER	RCA Victor Div. Radio Corp. of America, Camden, New Jersey
TYPE SET	Projection Type Television Receiver
TUBES	Forty One (TV Only Models) Forty Nine (Combination Models)
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	5.1 Amp. @ 117 Volts AC
TUNING RANGES	TV Channels 2 thru 13 AM 540-1600KC SW 9.2-16.0MC FM 88-108MC

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FOR SERVICE INFORMATION ON RECORD CHANGER UNIT, SEE RCA VICTOR MODEL RP-176 PHOTOFACT SET #25 FOLDER #31 OR RECORD CHANGER MANUAL CM-1

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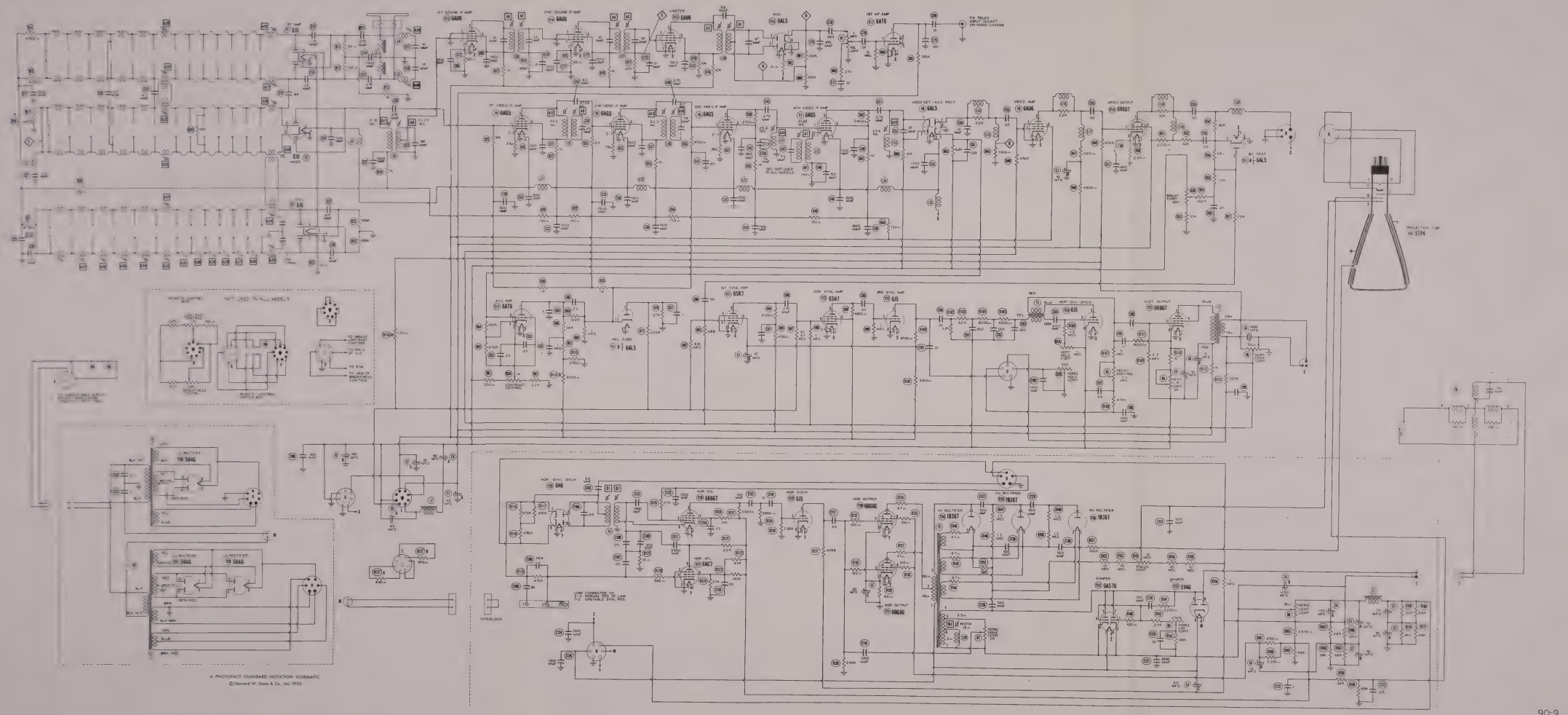
DATE 3-50 SET 90 FOLDER 9

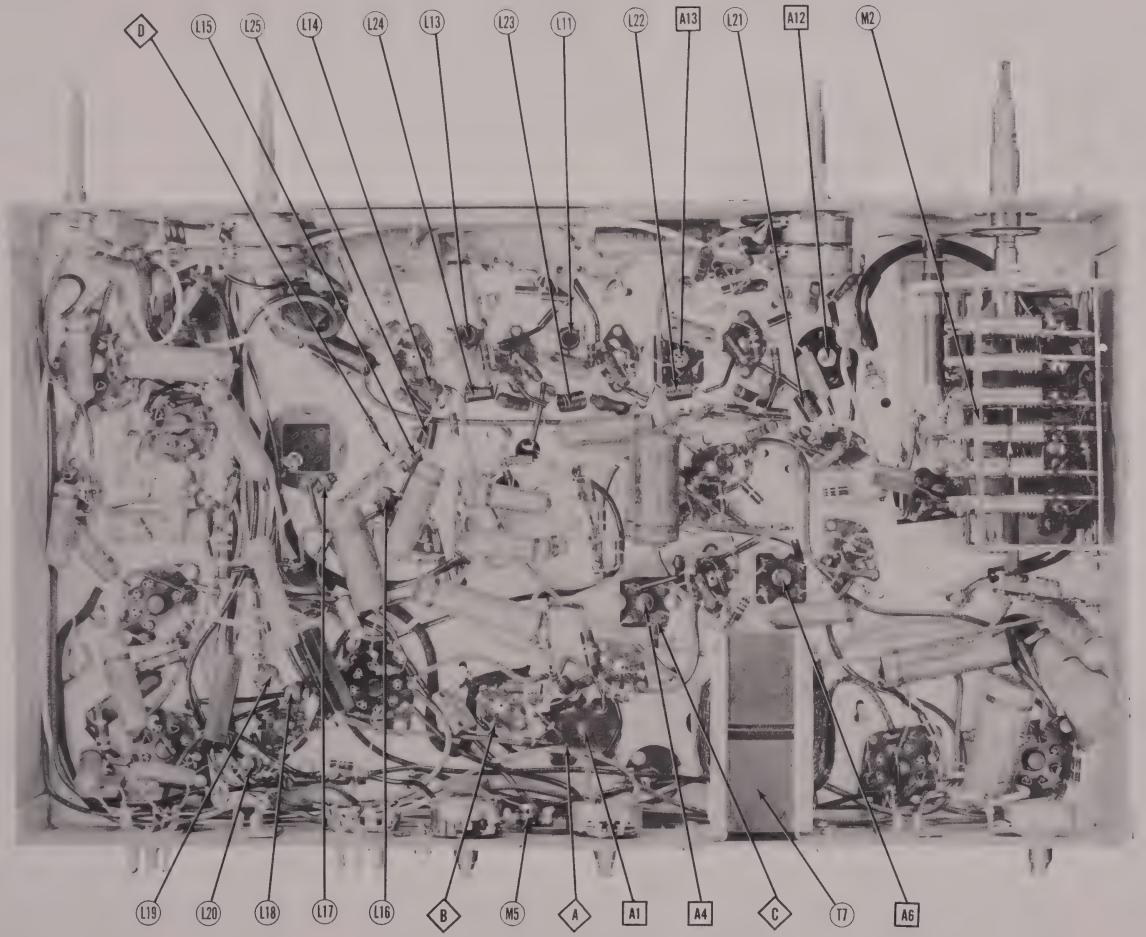
RCA VICTOR MODELS 8PCS41, -B, -C, 9PC41A, -B, -C, 648PTK, 648PV, 741PCS



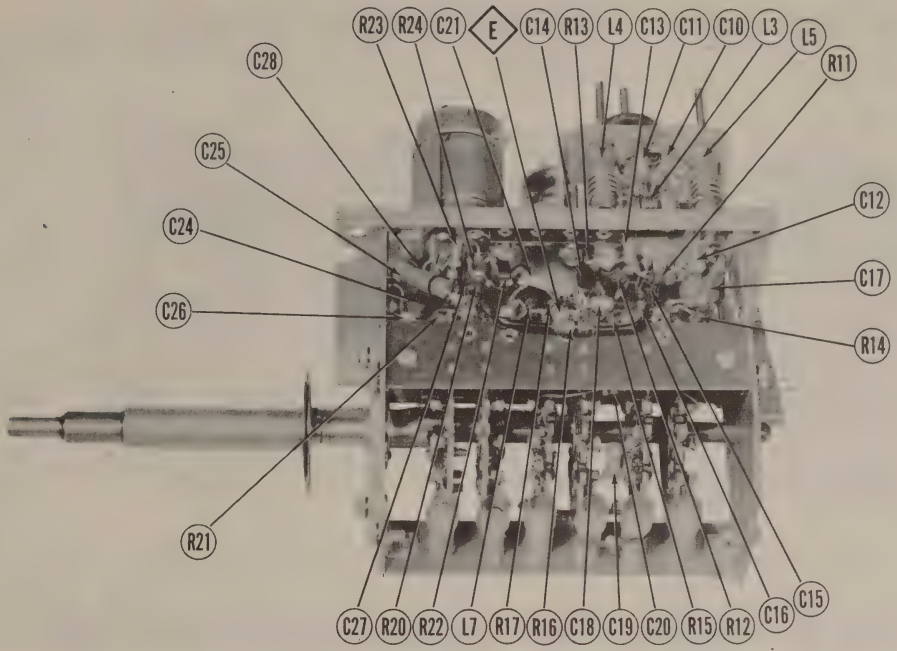
RCA VICTOR MODELS 8PC541, -B, -C,
9PC41A, -B, -C, 648PTK, 648PV, 741PCS

90-9

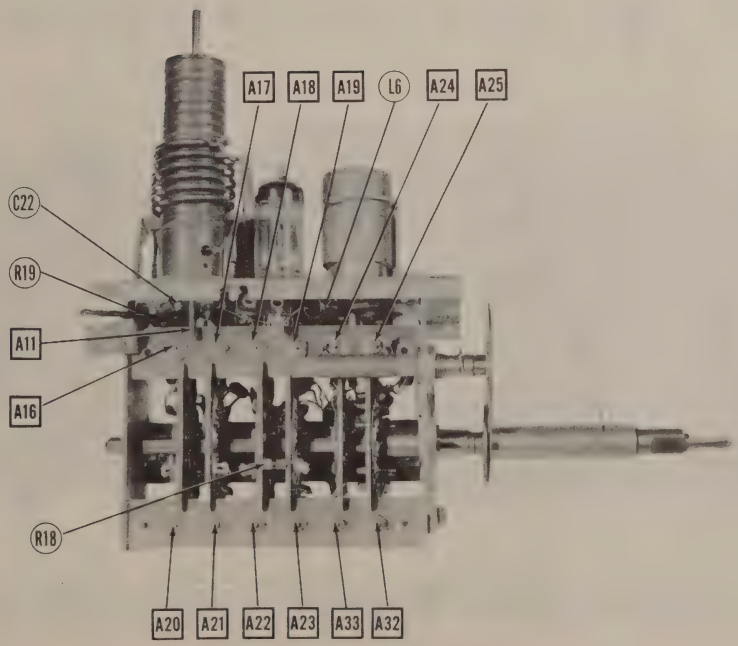
TV CHASSIS TOP VIEW



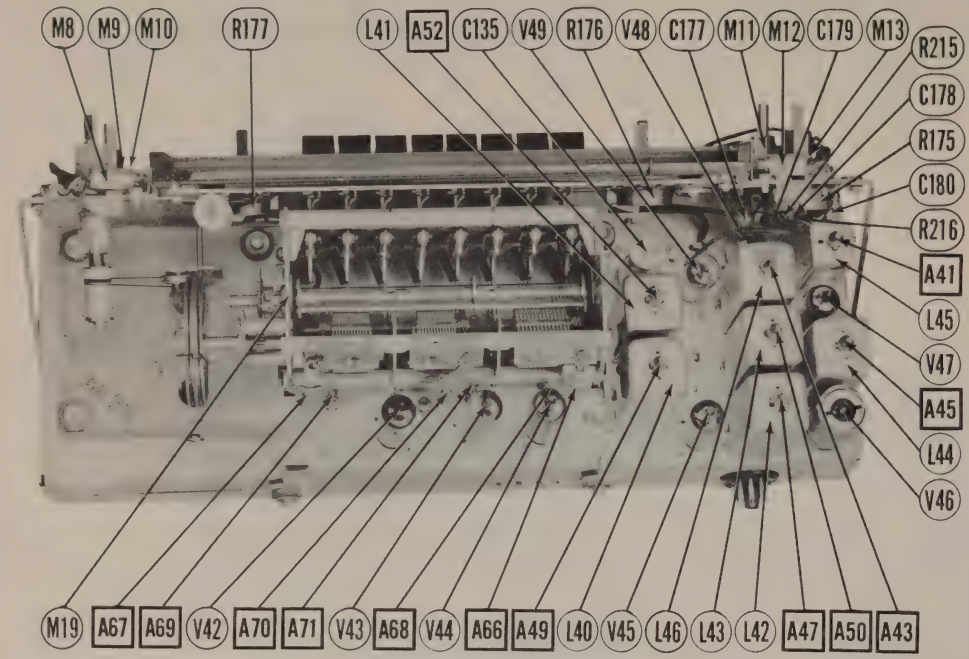
TV CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



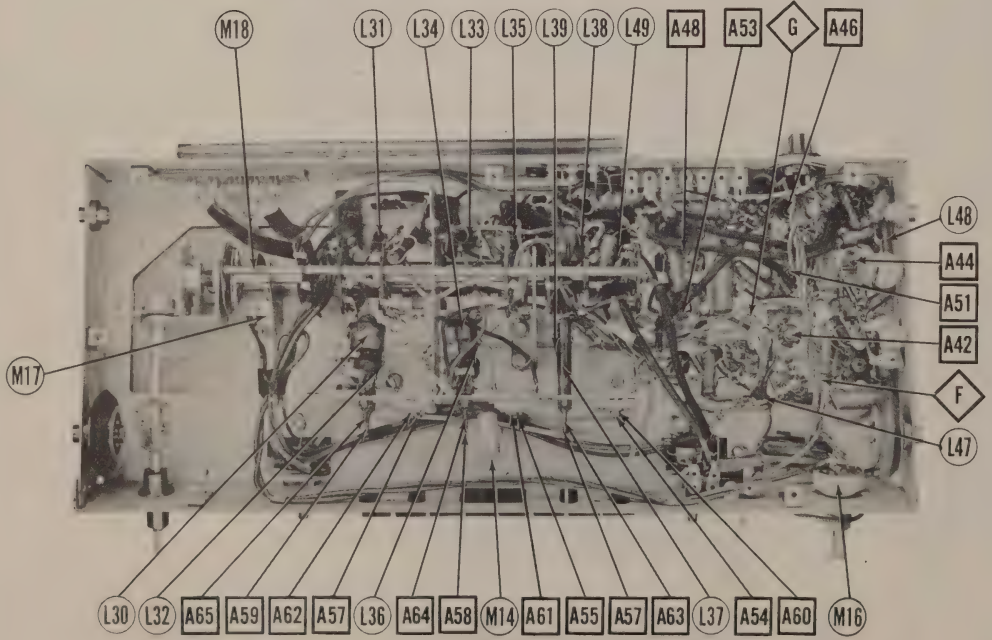
TV RF TUNER-RIGHT SIDE



TV RF TUNER-LEFT SIDE



RADIO CHASSIS-TOP VIEW



RADIO CHASSIS-BOTTOM VIEW
TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

When complete receiver alignment is to be performed, the order given is recommended.
Remove local oscillator tube 6J6 (V3) to prevent erroneous indications.
Turner chassis may be aligned without high voltage supply connected; this removes the high voltage shock hazard.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.05MFD	High side to pin 1 (Grid) of 6AU6 (V15). Low side to chassis.	21.25MC (Unmod.)	13	DC Probe to Point (A). Common to chassis.	A1, A2	Detune A 1. Adjust A2 for maximum deflection.
2.	.05MFD	"	"	"	DC Probe to Point (B). Common to chassis.	A1	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
3.	.05MFD	High side to pin 1 (Grid) of 6BA6 (V14). Low side to chassis.	21.25MC (Unmod.)	13	DC Probe to Point (C). Common to chassis.	A3, A4	Adjust for maximum deflection.
4.	Direct	High side to ungrounded tube shield floating over mixer tube. Low side to chassis.	21.25MC	"	"	A5, A6	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube. Low side to chassis.	21.25MC (450KC Sweep)	21.25MC	13	Vert. Amp. to Point (C). Low side to chassis.	A3, A4, A5, A6	Adjust for maximum amplitude and symmetry as per Fig 1.
2.	Direct	"	"	"	"	Vert. Amp. to Point (B). Low side to chassis.	A1, A2	Adjust for maximum amplitude and straightness of diagonal line with 21.25MC marker at center of pattern as per Fig 2. (continue with step 5).

VIDEO IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Remove AGC tube 6AT6 (V12), turn contrast control to maximum. Connect negative lead of 3 volt battery to pin 1 of 6AL5 (V12). Connect positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	Direct	High side to ungrounded tube shield floating over mixer tube. Low side to chassis.	21.25MC (Unmod.)	13	DC Probe to Point (D). Common to chassis.	A7, A8	Adjust for MINIMUM deflection.
6.	Direct	"	27.25MC (Unmod.)	"	"	A9	"
7.	Direct	"	19.75MC (Unmod.)	"	"	A10	"
8.	Direct	"	21.8MC (Unmod.)	"	"	A11	Adjust for maximum deflection.
9.	Direct	"	25.3MC (Unmod.)	"	"	A12	"
10.	Direct	"	22.3MC (Unmod.)	"	"	A13	"
11.	Direct	"	25.2MC (Unmod.)	"	"	A14	"
12.	Direct	"	23.4MC (Unmod.)	"	"	A15	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Direct	High side to ungrounded tube shield floating over mixer tube. Low side to chassis.	24MC (10MC SWP)	22.3MC 25.75MC	13	Vert. Amp. to Point (D). Low side to chassis.		Check for response shape of response curve and placement of markers as per Fig 3. If necessary slightly retouch A11 thru A15 for optimum results.

FIG. 1

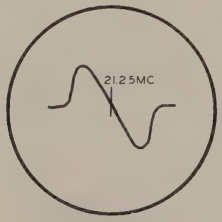


FIG. 2

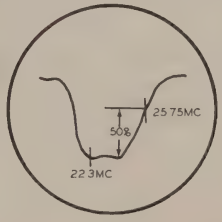


FIG. 3

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Replace local oscillator tube (V3).
Connect a 1000MMF capacitor from first video IF grid (pin 1) to chassis. Keep leads of capacitor as short as possible.
Reduce bias voltage supplied by battery to -1 volt.
The sweep generator should be terminated with its characteristic output impedance (usually 50 ohms).
The RF and mixer adjustments are noramlly very stable and should not be attemped unless they are definitely known to be out of adjustment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω carbon res.	To antenna terminals with 120Ω resistor in each lead.	177MC (10MC SWP)	177.25MC 179.75MC	7	Vert. Amp. to Point (E) in series with 10KΩ. Low side to chassis.	A16, A17, A18, A19	Adjust for flat topped response as per Fig 4 with markers above 70%. Check for response curve as per Fig 4.
15.	"	"	183MC (10MC SWP)	181.25MC 185.75MC	8	"		Check for response as per Fig 4. If markers are below 70% on any channel make slight readjustment of A16, A17, A18 and A19 with channel selector on that channel. Recheck other high band channels for optimum response.
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			207MC (10MC SWP)	205.25MC 209.75MC	12			
			213MC (10MC SWP)	211.25MC 215.75MC	13			
16.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A20, A21, A22, A23	Adjust for flat topped response as per Fig 4 with markers above 70%.
17.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check for response as per Fig 4. If markers are below 70% on any channel make slight readjustments of A20, A21, A22 and A23 with channel selector on that channel. Recheck other low band channels for optimum response.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT

Remove 1000MMF capacitor.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
18.	Two 120Ω carbon res.	To antenna terminals with 120Ω resistor in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (B). Common to chassis.	A24, A25	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Keep A24 and A25 slugs at approximately the same relative position.
19.	"	"	209.75MC	12	"	A26	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			203.75MC	11		A27	
			197.75MC	10		A28	
			191.75MC	9		A29	
			185.75MC	8		A30	
			179.75MC	7		A31	
20.	"	"	87.75MC	6	"	A32, A33	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Keep A32 and A33 slugs at approximately the same relative positions.
			81.75MC	5		A34	
			71.75MC	4		A35	
			65.75MC	3		A36	
			59.75MC	2		A37	

MIXER GRID TRAP ADJUSTMENT

A. Connect output of sweep generator to antenna terminals as in RF and mixer alignment.
B. Connect oscilloscope to Point E thru 10KΩ.
C. Connect a 1000MMF capacitor from grid of first Video IF to chassis.
D. Turn channel switch and sweep thru low frequency channels, and select a channel with essentially flat response with markers above 80%.
E. Remove shunt capacitor from first video IF amplifier and shunt grid of second video amplifier grid to chassis.
F. Adjust A38 (rear of tuner) for response similar to the one obtained when first video IF grid was shunted.
NOTE: In some later models A38 is a fixed capacitor (C21). In those receivers this step may be used as a check of correct mixer operation.

WAVE TRAP ADJUSTMENT

Wave traps A39 and A40 are used for specific types of interference and their alignment will depend upon the type encountered. With the receiver tuned to the channel having the interference set fine tuning control until interference is at maximum. Adjust A39 and A40 for minimum interference in the picture and sound, keeping the cores at approximately the same relative position. Turn one core 1/2 turn, adjust the other for minimum interference.

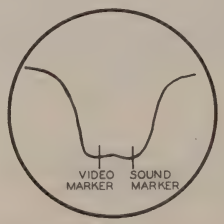


FIG. 4

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

All critical lead dress should be performed before alignment.
Alignment should be performed in the order outlined, If an y portion of the set is aligned, perform all steps after that portion.
To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

FM IF ALIGNMENT

Turn the function selector switch to "FM" (maximum clockwise).
Connect two matched 100KΩ (± 1%) resistors in series from point F to chassis. The junction of these two resistors is alignment point H as shown on the schematic.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Connect an output meter across the speaker voice coil.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
21	.01MFD	High side to pin 1 (Grid) of 6AU6 (V47). Low side to chassis.	10.7MC (30% mod. 400 ∿ AM)	FM (max. CW)	Tuning gang fully closed	DC Probe to Point (F). Common to chassis.	A41	Connect a 680Ω resistor between terminals "D" and "E" of L46. Adjust for maximum deflection.
22	.01MFD	"	"	"	"	DC Probe to Point (G). Common to point (H).	A42	Remove the 680Ω resistor. Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. The voltage should change rapidly as zero is approached. A slow approach towards zero indicates severe detuning and A39 should be turned in the opposite direction.
23	.01MFD	"	"	"	"	"	A43	Adjust for MINIMUM output on the output meter connected across voice coil. If minimum output and zero voltage on the VTVM do not occur at the same settings of A39 and A40, it may be necessary to adjust A39 and A40 simultaneously until minimum audio output and zero voltage on VTVM occur at the same point. Repeat step 21 omitting the 680Ω resistor. Remove the output meter.
24	.01MFD	High side to pin 1 (Grid) of 6BA6 (V42). Low side to chassis.	"	"	"	DC Probe to Point (F). Common to chassis.	A44, A45, A46, A47, A48, A49	Alternately load the primary and secondary of each transformer while the opposite side of the same transformer is being adjusted. Adjust for maximum deflection.

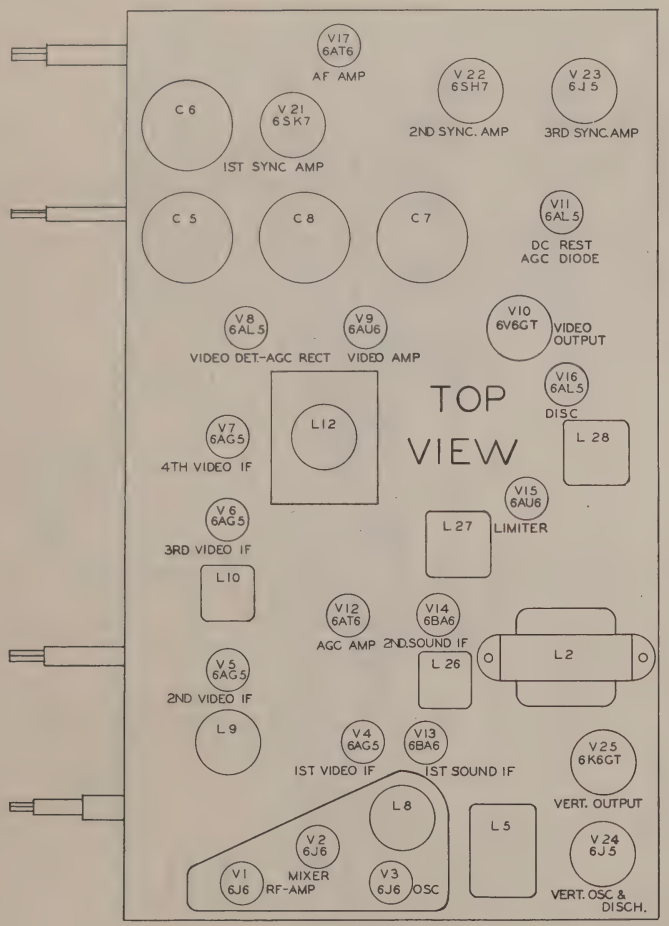
AM ALIGNMENT

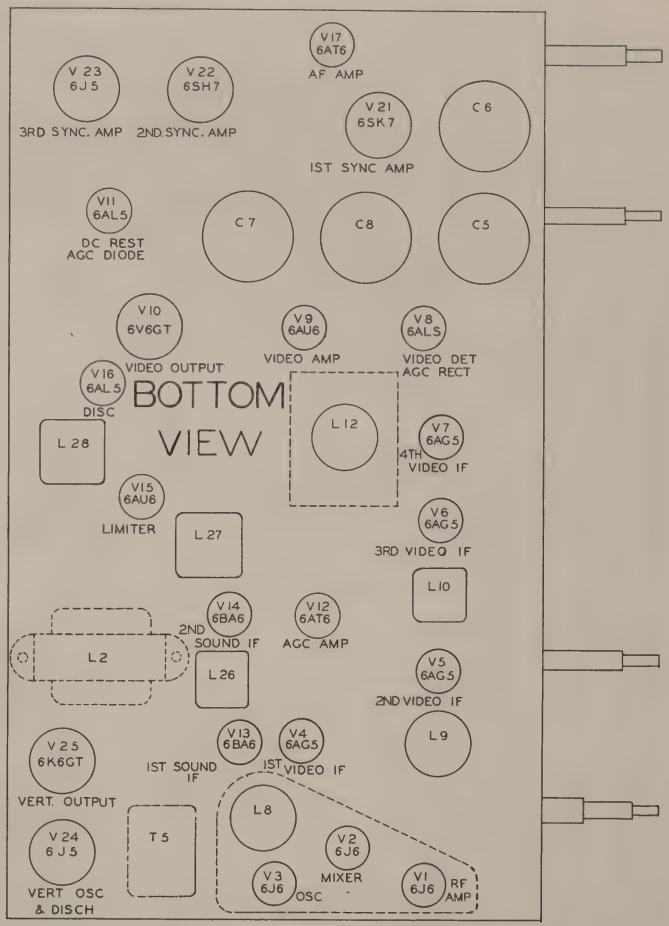
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
25	.01MFD	High side to pin 1 (Grid) of 6BA6 (V42). Low side to chassis.	455KC (400 ∿ Mod)	"C" band second pos. CCW)	Tuning gang fully open	Across voice coil	A50, A51, A52, A53	Alternately load the primary and secondary of each transformer with a 10KΩ resistor while the opposite side of the same transformer is being adjusted. Adjust for maximum output.
26	25MMF capacitor in series with a 150Ω carbon res.	High side thru dummy to antenna terminal "4". Low side to chassis.	15.5MC	"	15.5MC	"	A54, A55, A56	Adjust for maximum output. Tune the signal generator to 16.41MC and increase the output. A signal should be heard. If it is not, reset the signal generator to 15.5MC and open A51 to the next peak and recheck for image.
27	"	"	9.5MC	"	9.5MC	"	A57, A58, A59	Adjust for maximum output. Tune the signal generator to 10.41MC and increase the output. A signal should be heard. If it is not the set is incorrectly aligned, therefore repeat steps 26 and 27.
28	200MMF	High side to antenna terminal "4". Low side to chassis.	1400KC	"A" band (third pos. CCW)	1400KC	Across voice coil	A60, A61, A62	Adjust for maximum output.
29	200MMF	"	600KC	"	600KC	"	A63, A64, A65	Adjust for maximum output. Repeat steps 28 and 29 until no further improvement can be made.

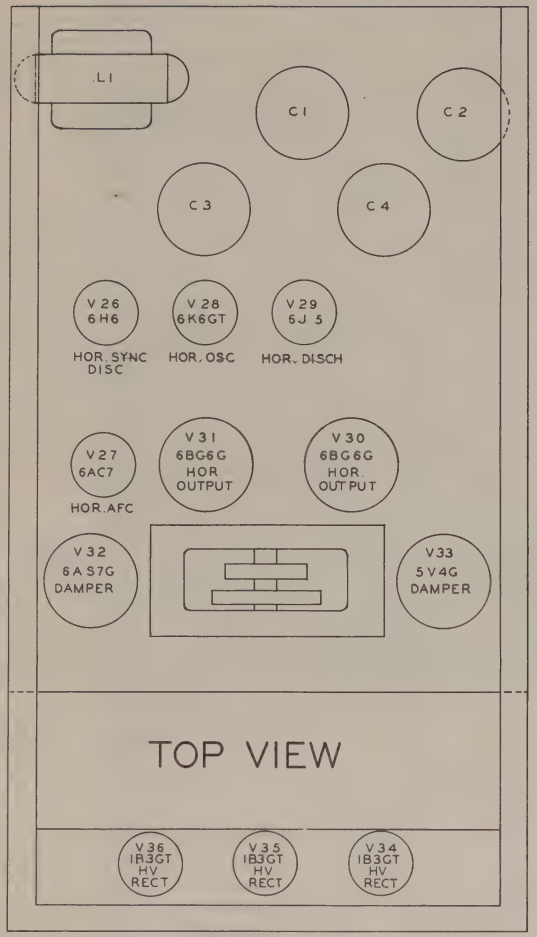
FM RF ALIGNMENT

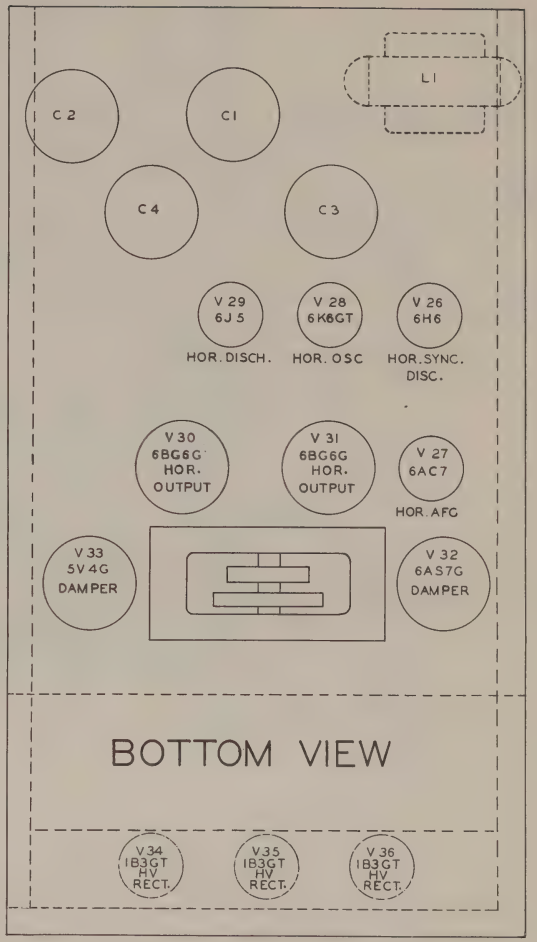
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
30	Two 120Ω carbon res.	Across antenna terminals "4" and "5" with 120Ω in series with each lead.	106MC	FM	106MC	DC Probe to Point (F). Common to chassis.	A66, A67	Adjust for maximum deflection.
31	"	"	88MC	"	88MC	"	A68, A69	Adjust for maximum deflection. If two peaks are noted, use the one with the slug farthest out. Repeat steps 30 and 31 until no further improvement can be made.
32		Not used	106MC	"	106MC	"	A70	Adjust for maximum deflection (noise voltage) If two peaks are noted use the one with the largest capacity.
33		Not used	90MC	"	90MC	"	A71	Adjust for maximum deflection (noise voltage) If two peaks are noted,use the one with the slug farthest out. Repeat steps 32 and 33 until no further improvement can be made.





TV CHASSIS TUBE PLACEMENT CHART





HORIZONTAL SWEEP CHASSIS TUBE PLACEMENT CHART

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	65VDC	65VDC	6.3VAC	0V.	-.2VDC	-.2VDC	0V.		
V 2	6J6	120VDC	120VDC	6.3VAC	0V.	-2.6VDC	3.3VDC	0V.		
V 3	6J6	70VDC	70VDC	6.3VAC	0V.	§-3.8VDC	§-4VDC	.2VDC		
V 4	6AG5	-3.5VDC	.2VDC	0V.	6.3VAC	90VDC	90VDC	.2VDC		
V 5	6AG5	-2.4VDC	.2VDC	0V.	6.3VAC	100VDC	100VDC	.2VDC		
V 6	6AG5	.1VDC	.5VDC	0V.	6.3VAC	95VDC	100VDC	.5VDC		
V 7	6AG5	0V.	1.9VDC	0V.	6.3VAC	80VDC	120VDC	1.9VDC		
V 8	6AL5	0V.	#-.2VDC	0V.	6.3VAC	#4VDC	0V.	-2.3VDC		
V 9	6AU6	-2.9VDC	0V.	0V.	6.3VAC	225VDC	133VDC	0V.		
V 10	6V6GT	0V.	0V.	170VDC	250VDC	-1.4VDC	-4.7VDC	6.3VAC	9.6VDC	
V 11	6AL5	0V.	#0V.	6.3VAC	0V.	#29VDC	0V.	-2.5VDC		
V 12	6AT6	#1.8VDC	#6.3VDC	0V.	6.3VAC	#4VDC	#4VDC	#125VDC		
V 13	6BA6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	1.5VDC		
V 14	6BA6	0V.	0V.	0V.	6.3VAC	115VDC	115VDC	1.5VDC		
V 15	6AU6	-.2VDC	0V.	0V.	6.3VAC	45VDC	45VDC	0V.		
V 16	6AL5	-.1VDC	- 1VDC	0V.	6.3VAC	0V.	0V.	-4.6VDC		
V 17	6AT6	-.4VDC	0V.	0V.	6.3VAC	0V.	0V.	67VDC		
V 18	6J5	0V.	0V.	200VDC	55VDC	45VDC	50VDC	6.3VAC	55VDC	
V 19	6F8G	0V.	0V.	380VDC	260VDC	-21VDC	-25VDC	6.3VAC	0V.	
V 20	6F8G	0V.	0V.	380VDC	260VDC	-21VDC	90VDC	6.3VAC	0V.	
V 21	6SK7	0V.	0V.	0V.	-1.3VDC	0V.	110VDC	6.3VAC	185VDC	
V 22	6SH7	0V.	0V.	0V.	-11VDC	0V.	135VDC	6.3VAC	135VDC	
V 23	6J5	0V.	0V.	80VDC	110VDC	-8.8VDC	-130VDC	6.3VAC	0V.	
V 24	6J5	#130VDC	#130VDC	#90VDC #150VDC	#.1VDC	#-15VDC	#0V.	6.3VAC	#0V.	
V 25	6K8GT	#130VDC	#130VDC	#380VDC	#360VDC	#0V.	#0V #41VDC	6.3VAC	#8VDC #43VDC	
V 26	6H6	0V.	0V.	-3.4VDC	-.1VDC	-3.6VDC	.4VDC	6.3VAC	-1.2VDC	
V 27	6AC7	0V.	6.3VAC	0V.	-.5VDC	0V.	112VDC	0V.	90VDC	
V 28	6K8GT	0V.	6.3VAC	250VDC	250VDC	-26VDC	-3.5VDC	0V.	.1VDC	
V 29	6J5	0V.	0V.	95VDC	0V.	-6.5VDC	510VDC	6.3VAC	0V.	
V 30	6BG6G	0V.	0V.	17.5VDC	0V.	-2.5VDC	0V.	6.3VAC	310VDC	TOP CAP *
V31	6BG6G	0V.	0V.	17.5VDC	310VDC	-2.5VDC	330VDC	6.3VAC	310VDC	TOP CAP *
V32	6AS7G	350VDC 440VDC	500VDC 510VDC	500VDC 510VDC	350VDC 440VDC	500VDC 510VDC	500VDC 510VDC	570VDC	570VDC	
V33	5V4G	0V.	570VDC	0V.	500VDC 510VDC	0V.	500VDC 510VDC	0V.	570VDC	
V34	1B3GT	* DO NOT MEASURE								
V35	1B3GT	* DO NOT MEASURE								
V36	1B3GT	* DO NOT MEASURE								
V37	5U4G	0V.	540VDC	0V.	460VAC	0V.	460VAC	0V.	540VDC	
V38	5U4G	0V.	540VDC	0V.	460VAC	0V.	460VAC	0V.	540VDC	
V39	5U4G	0V.	260VDC	0V.	370VAC	0V.	370VAC	0V.	260VDC	
V40	5U4G	0V.	390VDC	0V.	375VAC	180VDC	375VAC	0V.	390VDC	
V41	5TP4	0V.	3.5VDC	PIN 6 *	PIN 10 230VDC	PIN 11 0V.	PIN 12 6.3VAC			

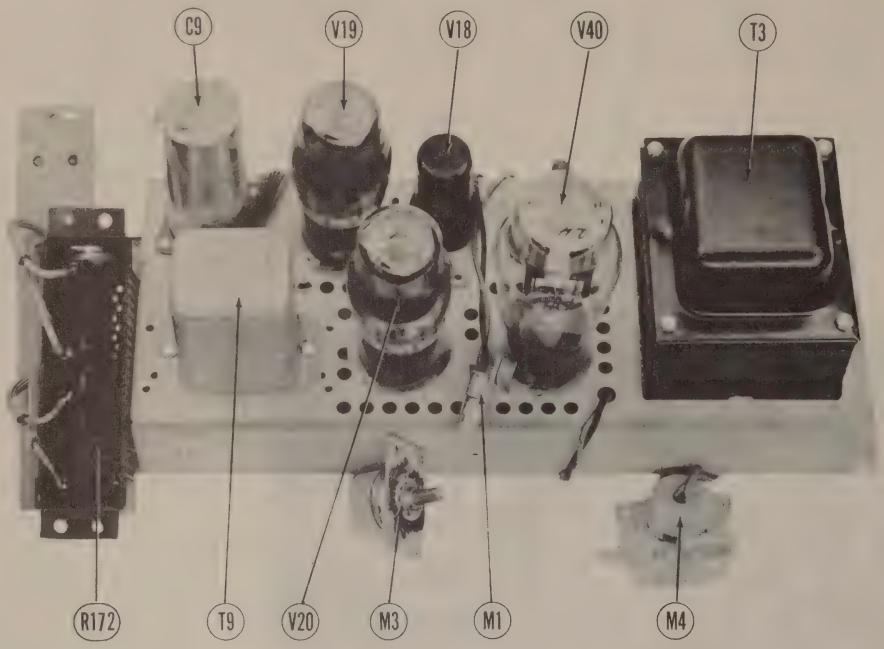
NOTE: CONTRAST CONTROL IS SET AT MAXIMUM FOR THESE MEASUREMENTS.
MEASURED FROM PIN 8 OF V24.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.

RESISTANCE READINGS

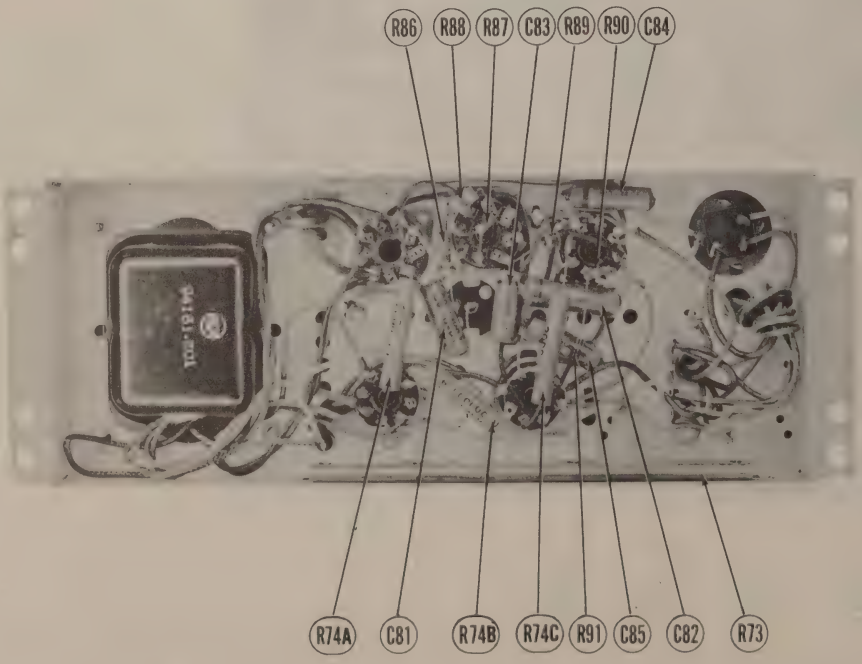
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†5.5KΩ	†5.5KΩ	.1Ω	0Ω	1000Ω	1000Ω	0Ω		
V 2	6J6	†2.5KΩ	†2.5KΩ	.1Ω	0Ω	1 Meg.	1 Meg.	0Ω		
V 3	6J6	†6.5KΩ	†6.5KΩ	.1Ω	0Ω	100KΩ	100KΩ	47Ω		
V 4	6AG5	1 Meg.	39Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 5	6AG5	1 Meg.	39Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 6	6AG5	1 Meg.	39Ω	0Ω	.1Ω	†5KΩ	†2.3KΩ	39Ω		
V 7	6AG5	0Ω	150Ω	0Ω	.1Ω	†8KΩ	†2KΩ	150Ω		
V 8	6AL5	0Ω	#10KΩ	0Ω	.1Ω	#82KΩ	0Ω	4KΩ		
V 9	6AU6	#470KΩ	0Ω	0Ω	.1Ω	†10KΩ	†1000Ω	0Ω		
V 10	6V6GT	0Ω	0Ω	†2.2KΩ	†60Ω	#470KΩ	26Ω	.1Ω	220Ω	
V 11	6AL5	1 Meg.	#200KΩ	.1Ω	0Ω	#1.2 Meg.	0Ω	25KΩ		
V 12	6AT6	#650KΩ	#340Ω	0Ω	.1Ω	#200KΩ	#85KΩ	†550KΩ		
V 13	6BA6	0Ω	0Ω	0Ω	.1Ω	†2KΩ	†2KΩ	100Ω		
V 14	6BA6	470KΩ	0Ω	0Ω	.1Ω	†2KΩ	†2KΩ	100Ω		
V 15	6AU6	22KΩ	0Ω	0Ω	.1Ω	†8KΩ	†8KΩ	0Ω		
V 16	6AL5	200KΩ	100KΩ	0Ω	.1Ω	0Ω	0Ω	100KΩ		
V 17	6AT6	10 Meg.	0Ω	0Ω	.1Ω	Inf.	Inf.	†330KΩ		
V 18	6J5	0Ω	0Ω	▲30KΩ	25KΩ	80KΩ	22KΩ	.1Ω	25KΩ	
V 19	6F8G	0Ω	0Ω	▬310Ω	▬1000Ω	220KΩ	200Ω	.1Ω	0Ω	
V 20	6F8G	0Ω	0Ω	▬290Ω	▬1000Ω	220KΩ	2.5KΩ	.1Ω	0Ω	
V 21	6SK7	0Ω	0Ω	0Ω	1 Meg.	0Ω	†4KΩ	.1Ω	†10KΩ	
V 22	6SH7	0Ω	0Ω	0Ω	1 Meg.	0Ω	†1000Ω	.1Ω	†7KΩ	
V 23	6J5	0Ω	0Ω	†9KΩ	†4KΩ	1 Meg.	#22KΩ	.1Ω	0Ω	
V 24	6J5	0Ω	0Ω	♦5.3 Meg. ♦.3 Meg.	#80KΩ	1 Meg.	#20Ω	.1Ω	#0Ω	
V 25	6K8GT	0Ω	0Ω	†2KΩ	†2KΩ	#2.2 Meg.	#4KΩ #3Ω	.1Ω	#4.5KΩ 1500Ω	
V 26	6H6	0Ω	0Ω	1.3 Meg.	1.3 Meg.	1.3 Meg.	40Ω	.1Ω	330KΩ	
V 27	6AC7	0Ω	.1Ω	0Ω	2 Meg.	0Ω	♦20KΩ	0Ω	♦25KΩ	
V 28	6K8GT	0Ω	.1Ω	♦5.5KΩ	♦18KΩ	75KΩ	48KΩ	0Ω	10Ω	
V 29	6J5	0Ω	0Ω	♦470KΩ	6.5KΩ	220KΩ	♦1.5KΩ	.1Ω	0Ω	
V 30	6BG6G	Inf.	0Ω	80Ω	Inf.	220KΩ	Inf.	.1Ω	♦4KΩ	TOP CAP ▲ 75Ω
V31	6BG6G	Inf.	0Ω	80Ω	♦4KΩ	220KΩ	♦2.5KΩ	.1Ω	♦4KΩ	TOP CAP ▲30Ω
V32	6AS7G	♦520KΩ ♦280KΩ	♦100Ω ♦70Ω	♦95Ω ♦65Ω	♦520KΩ ♦280KΩ	♦100Ω ♦70Ω	♦95Ω ♦65Ω	210KΩ	210KΩ	
V33	5V4G	Inf.	210KΩ	Inf.	♦100Ω ♦70Ω	Inf.	♦100Ω ♦70Ω	Inf.	210KΩ	
V34	1B3GT	Inf.	♦60 Meg.	Inf.	♦60 Meg.	Inf.	♦60 Meg.	♦60 Meg.	♦60 Meg.	TOP CAP ▲200Ω
V35	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ♦60 Meg.
V36	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V37	5U4G	Inf.	15KΩ	Inf.	20Ω	Inf.	19Ω	Inf.	15KΩ	
V38	5U4G	Inf.	15KΩ	Inf.	19Ω	Inf.	20Ω	Inf.	15KΩ	
V39	5U4G	Inf.	10KΩ	Inf.	800Ω	Inf.	800Ω	Inf.	10KΩ	
V40	5U4G	Inf.	5KΩ	Inf.	250Ω	5KΩ	240Ω	Inf.	5KΩ	
V41	5TP4	0Ω	PIN 8 ♦35 Meg.	PIN 10 30KΩ	PIN 11 0Ω	PIN 12 .1Ω				

† MEASURED FROM PIN 8 OF V39.
♦ MEASURED FROM PIN 8 OF V37.
MEASURED FROM PIN 8 OF V24.
▬ MEASURED FROM PIN 8 OF V40.
▲ MEASURED FROM PIN 8 OF V33.

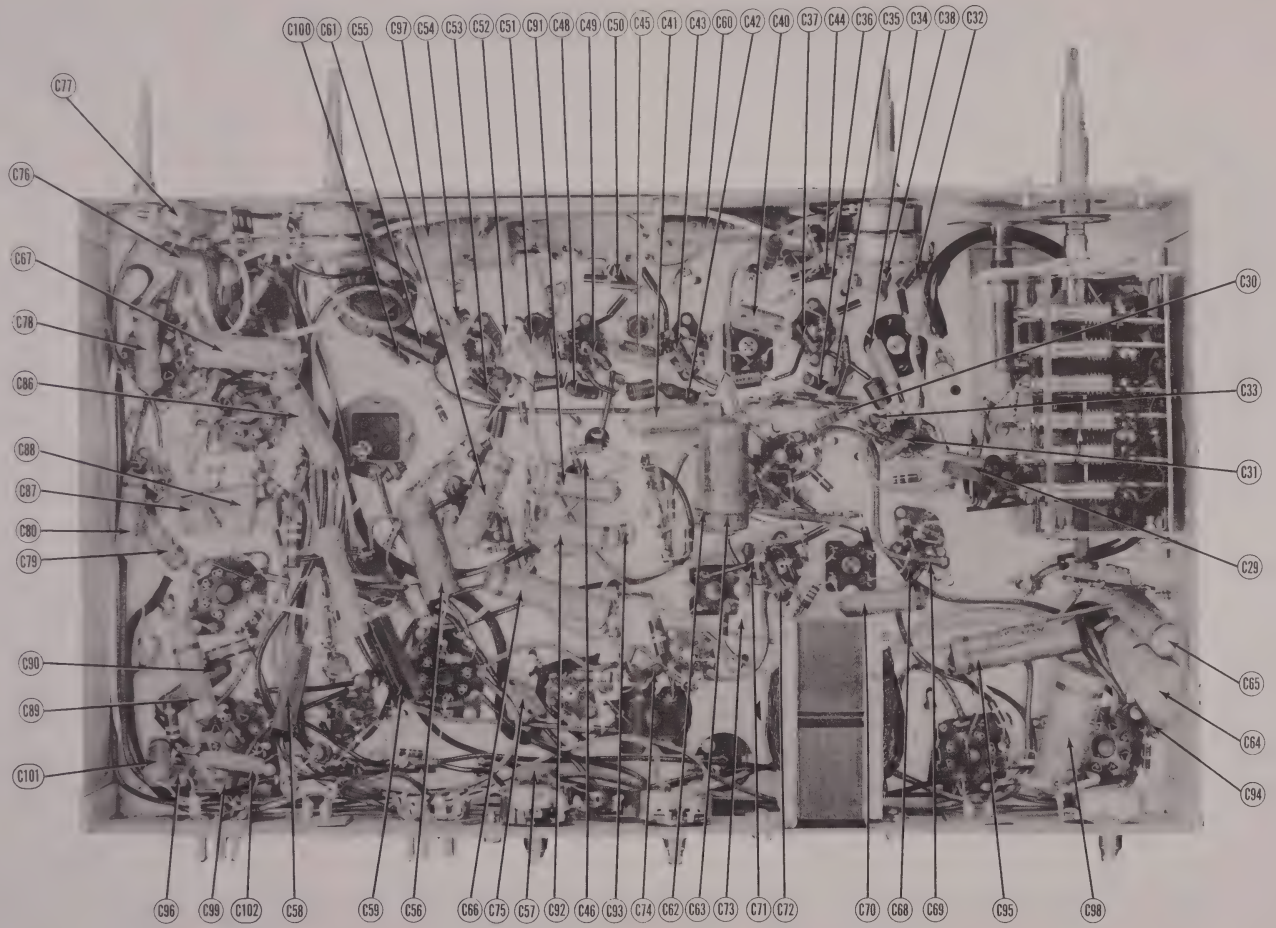
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



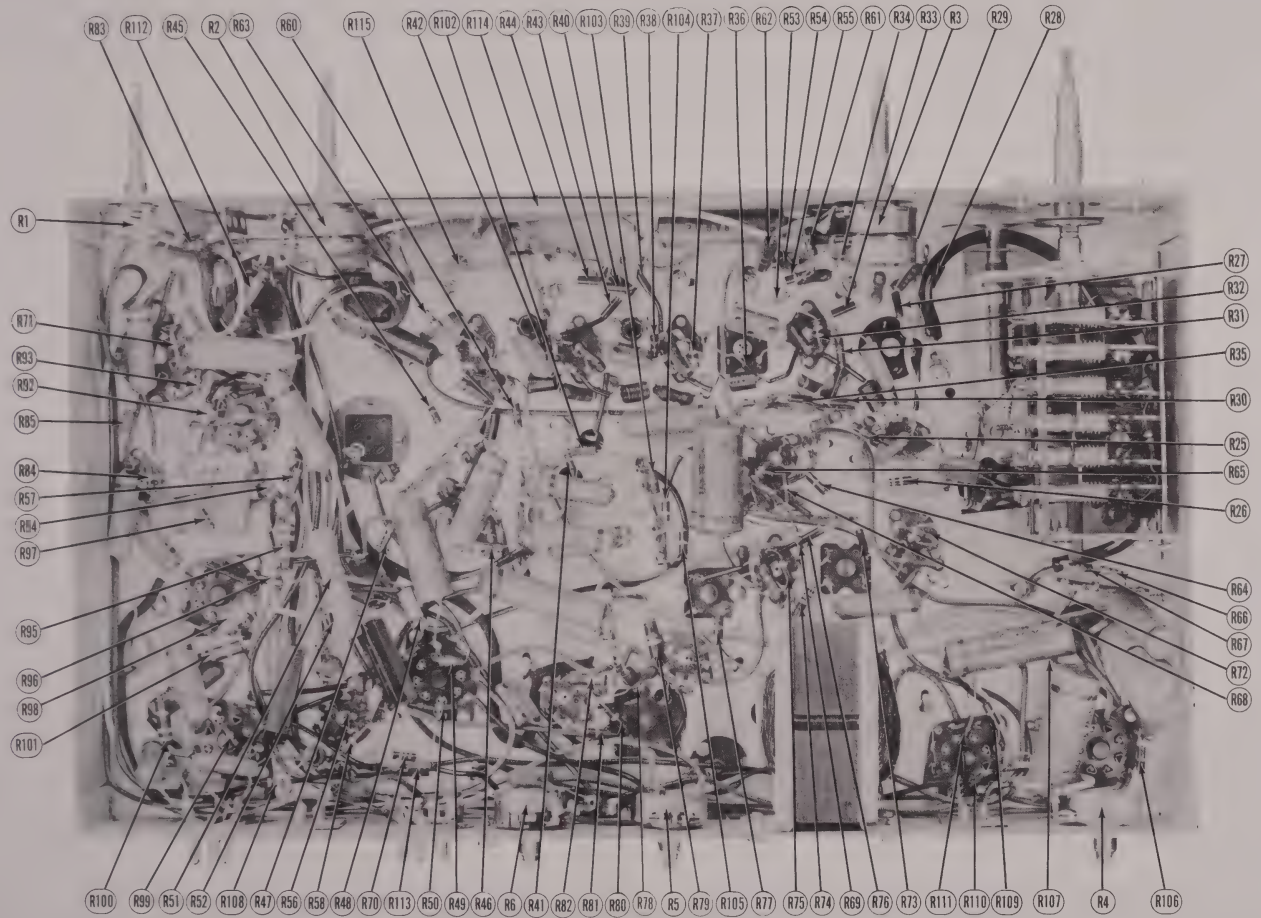
AUDIO CHASSIS-TOP VIEW



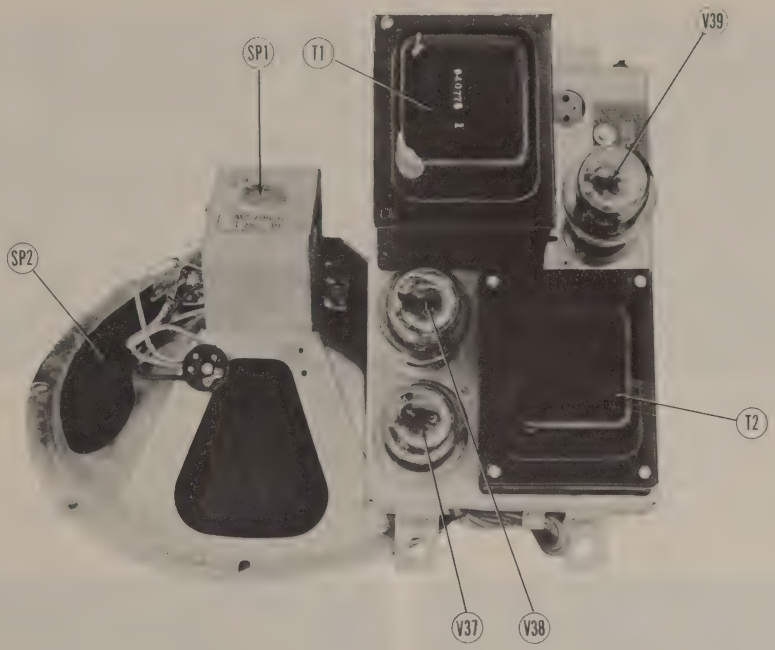
AUDIO CHASSIS-BOTTOM VIEW



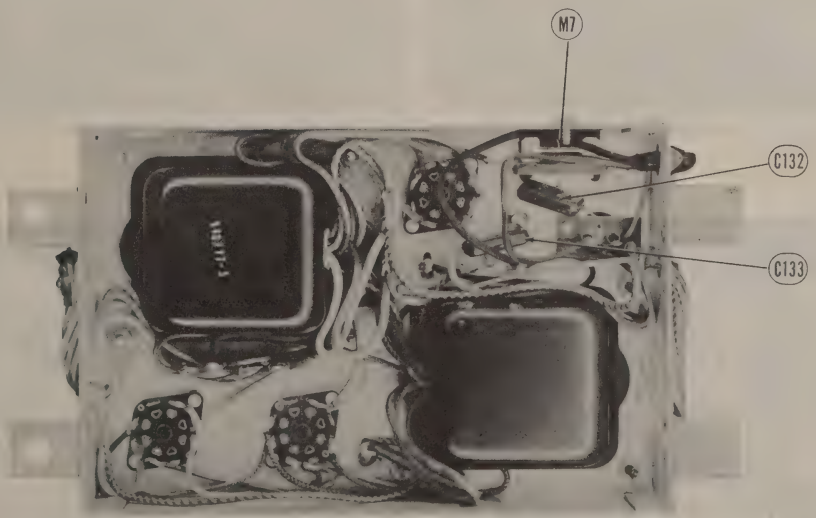
TV CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



TV CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



LOW VOLTAGE SUPPLY - TOP VIEW



LOW VOLTAGE SUPPLY - BOTTOM VIEW

OPTICAL BARREL ADJUSTMENTS

The following adjustments may be made with a test pattern from a station, in which case it must be definitely ascertained that the electrical focus is properly adjusted. If available, a test lamp is recommended. If a test lamp is used, it should be correctly centered in the kinescope holder and rotated until the picture appears properly on the screen. CAUTION: Test lamp should be turned on for only short periods of time as excessive heat will damage the corrector lens. The hole in the center of the corrector lens should be covered with a piece of black c ardboard. Figure 5 shows optimum adjustment conditions and should be used as a reference.

1. Optical Focus Adjustment (B4) .
Figure 6 shows the result of misadjustment of this control. If the vertical and horizontal double lines are parallel and the entire picture goes through an optical focus simultaneously, all other adjustments are probably correct.

2. Lateral Optical Adjustment (B9).
The lack of a parallel condition of the vertical double line as shown in Figure 7 indicates that the lateral optical adjustment needs adjusting. This condition may appear reversed, indicating that the lateral optical adjustment is off in the opposite direction. Figure 8 shows the result of trying to correct the above condition with the optical focus adjustment (B4).

3. Horizontal Optical Centering Adjustment (B5).
Figure 9 shows the misadjustment of the horizontal optical centering adjustment; notice that the horizontal double lines are not parallel. Figure 10 shows the result of attempting to correct this condition with the optical fosus adjustment (B4). Notice that the picture is out of focus at the right and left edge - the oppsite of Figure 8.

4. Corrector Lens Centering Adjustment (B6).
This adjustment is correct when the "halo" around the center dot of the pattern (when the optical focus is misadjusted) is circular as in Figure 6. Figure 12 shows the incorrect condition. Figure 11 shows this condition when B4 is set correctly. Notice the distorted image in the upper left portion of the figure.

5. Optical Barrel Vertical Tilt Adjustment (B7).
If the top and bottom of the picture do not go through a focus simultaneously as B4 is adjusted through an optical focus, incorrect adjustment of the vertical tilt adjustment (B7) is indicated. I the top of the picture comes into focus first as the focus adjustment is turned clockwise, the adjustment nearest the focus adjustment should be lowered until the entire picture goes through a focus simultaneously in the vertical plane. With this adjustment incorrect, the horizontal condition of Figure 13 will appear vertically.

6. Optical Barrel Horizontal Tilt Adjustment (B8).
If the left and right sides of the picture do not go through a focus simultaneously as in Figure 12, the horizontal tilt adjustments are incorrect and should be adjusted by raising one and lowering the other alternately until the entire picture goes through a focus horizontally at the same time. After adjustment of either the vertical or the horizontal tilt adjustments (B7 and B8) all previous adjustments should be rechecked

Figures 6 through 13 represent one misadjustment only and it should be borne in mind that any combinations of these misadjustments is posssible. Care must be exercised when analyzing individual cases to assure correct diagnosis of the existing mal-adjustments.

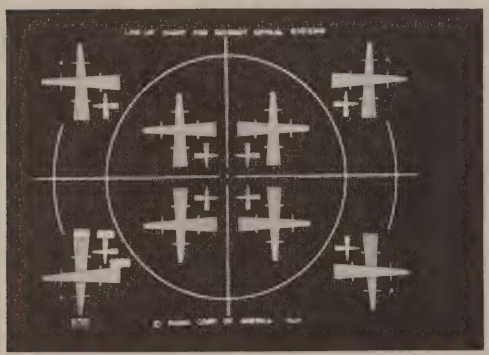


FIG. 5 - Image in optimum focus. Note 600 line definition is obtained in the corners of the picture.

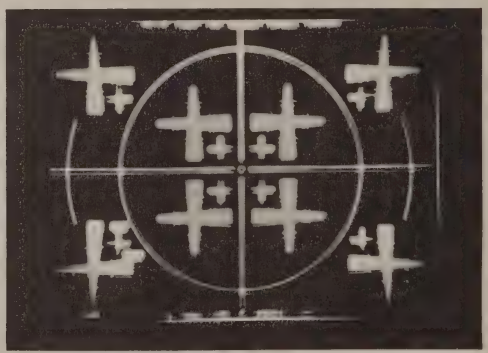


FIG. 6 - Optimum of adjustment position. Picture out of focus, showing double lines on both horizontal and vertical axes.

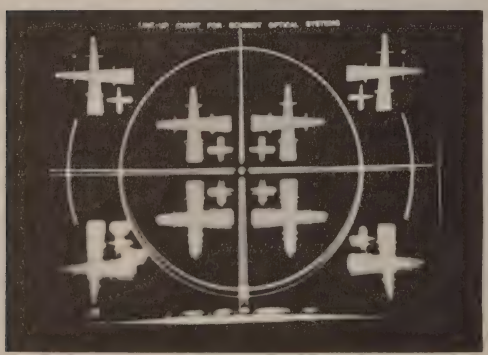


FIG. 7 - Lateral adjustment of optical barrel incorrect, as shown by a lack of a parallel condition of the vertical lines.

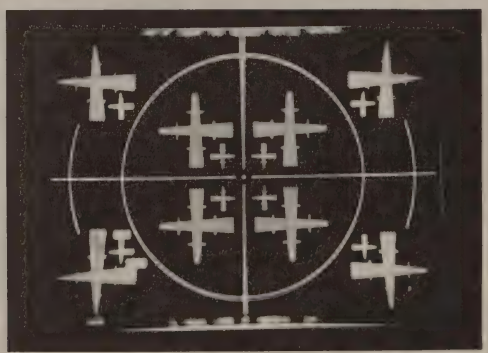


FIG. 8 - Same as shown in Fig. 7 except that the system has been focused for sharp definition of the center and an out-of-focus condition occurs at both top and bottom.

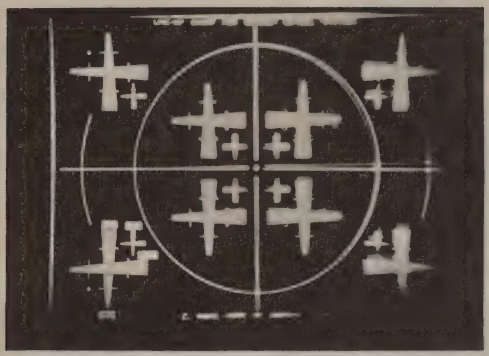


FIG. 9 - Out-of-focus condition due to incorrect horizontal adjustment. Image is sharp at the left-hand side of the picture.

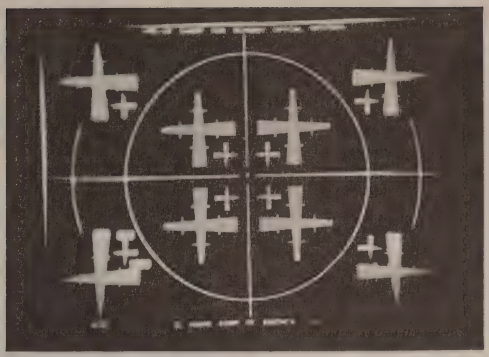


FIG. 10 - Same condition as Fig. 9 except that the picture has been focused by adjustment of the optical barrel to be correct at the center. Picture is out of focus at the right and left-hand sides but in focus along the vertical axis.

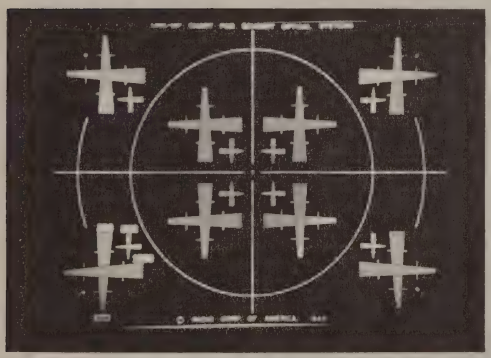


FIG. 11 - The aspherical corrector lens is off center and, in this case, the image is distorted in the upper left-hand quadrant.

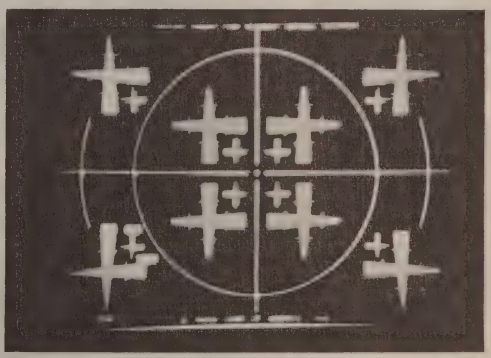


FIG. 12 - Aspherical correcting lens off center with optical system out-of-focus showing distorted "halo" around central dot.

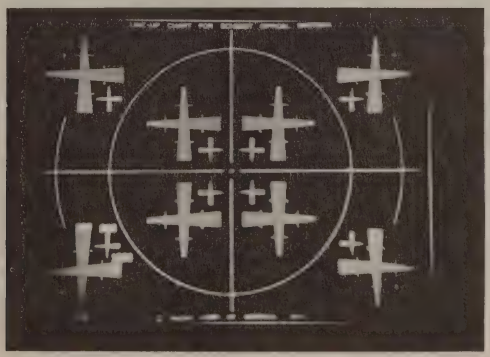
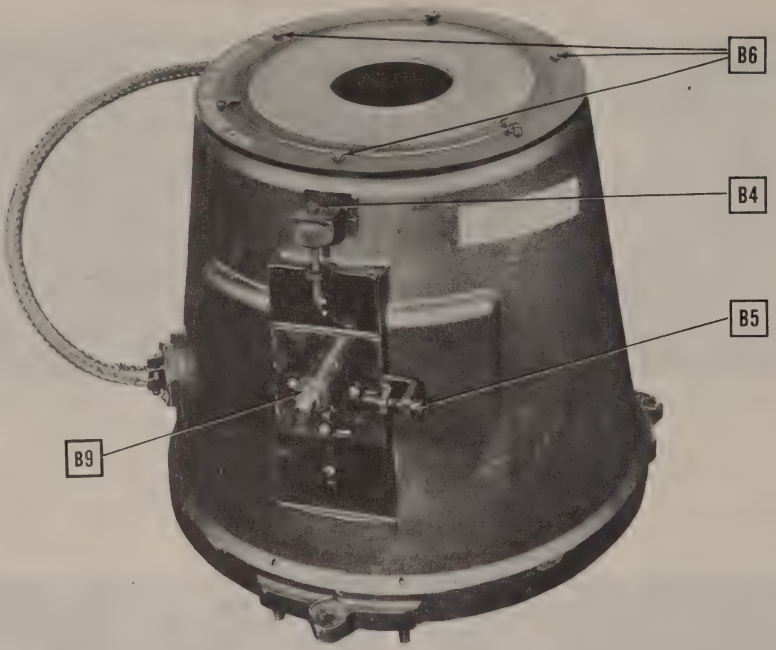
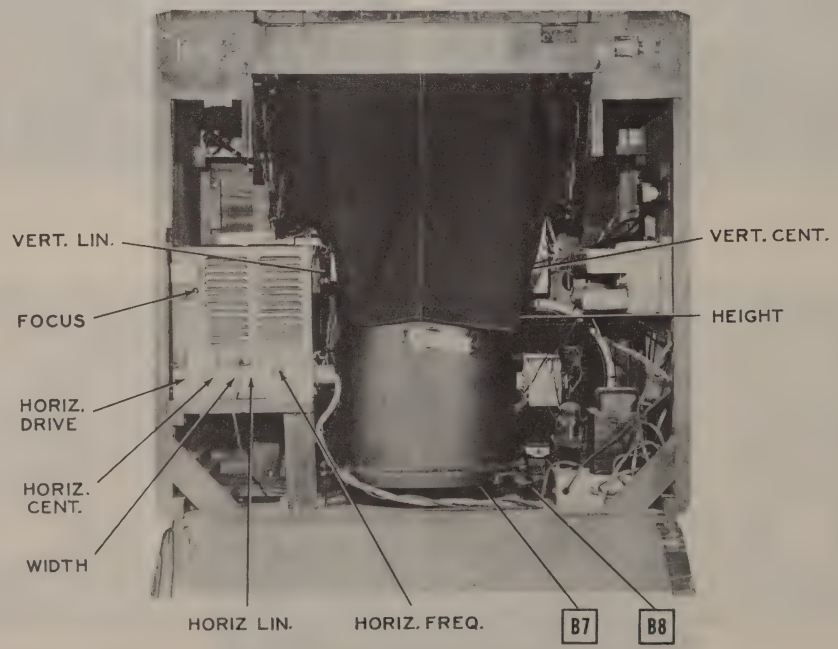


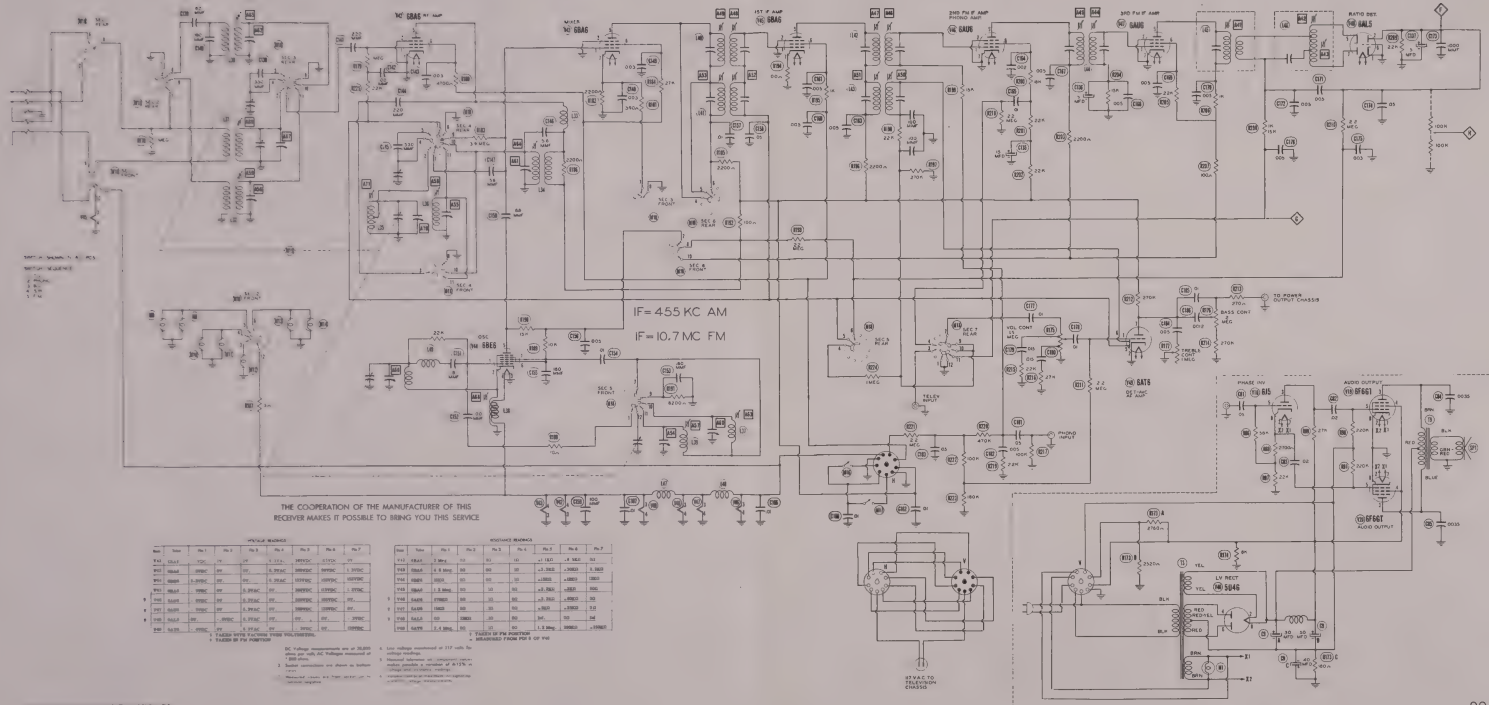
FIG. 13 - Incorrect adjustment of "tilt" of the optical barrel which produces a horizontal shift of the picture to the left and has a definite position of optimum focus for the left-hand side and the center of the picture.

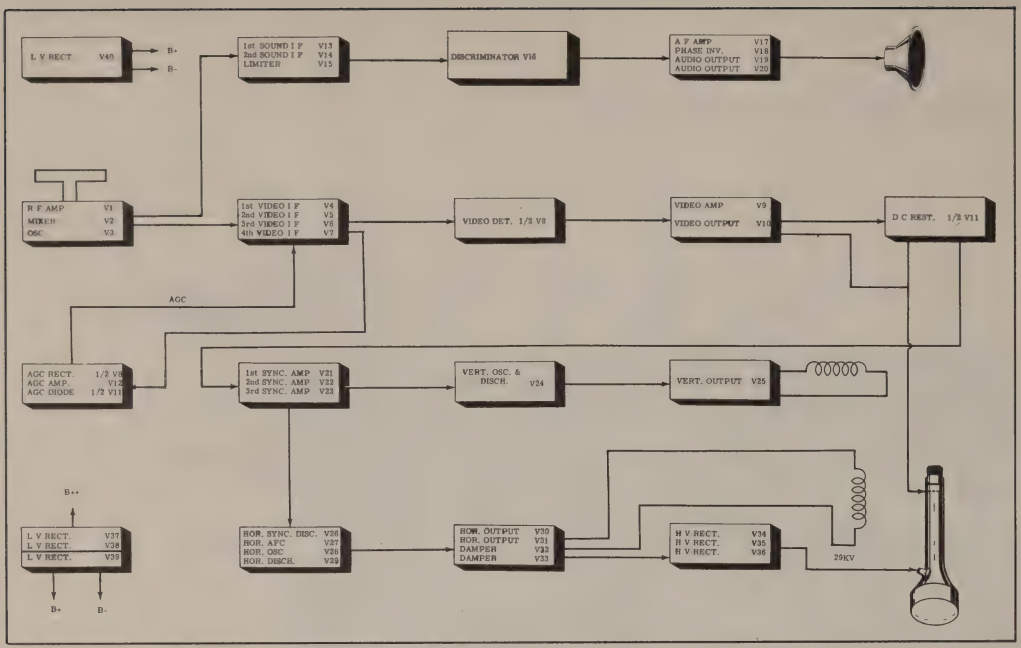


OPTICAL BARREL



CABINET-REAR VIEW


IF = 455 KC AM
IF = 10.7 MC FM
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950
90-9



BLOCK DIAGRAM

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type knobs from controls.
2. Remove base socket of picture tube and feed thru hole in dust cloth. Some plugs connecting the various units are held in with 1/4" hex head bolts. Make sure these are removed before withdrawing plugs.
3. Remove plug of shielded cable from Hor. deflection chassis and feed cable thru hole in dust cloth.
4. Remove plug from left rear of TV chassis and feed cable thru dust cloth.
5. Loosen screw holding yoke clamp and slide yoke off neck of picture tube.
6. Loosen three screws holding clamps over glass plate. Push clamps aside and remove glass plate over neck of picture tube.
7. Loosen three screws around large end of picture tube and remove tube.
8. Remove power plug from left rear corner of power supply chassis leading to Hor. deflection chassis.
9. Remove plug on left side of deflection chassis. This cable leads to power supply chassis.
10. Remove two plugs on right rear of TV chassis. These cables lead to Hor. deflection chassis.
11. Remove three 3/8" hex head bolts holding Hor. deflection chassis to cabinet. Remove the chassis with care as HV lead to picture tube is still connected. Turn chassis over and remove sixteen 1/4" hex head bolts from bottom cover. Unsolder HV lead. Loosen clamp screws on top of Hor. deflection chassis and remove HV lead from this unit.
12. Disconnect short black power lead plug of power supply chassis. This cable leads to audio amplifier chassis.
13. Disconnect plug on right rear of TV chassis leading to power supply chassis.
14. Remove four 3/8" hex head bolts holding power supply chassis to cabinet. Remove chassis.
15. Remove speaker plug at speaker. This cable leads to audio amplifier chassis.
16. Remove octal plug from center of audio amplifier chassis.
17. Remove bayonet plug from center of audio amplifier chassis.
18. Remove panel lamp from inside bottom front of cabinet.
19. Remove four 3/8" hex head bolts holding audio amplifier chassis to side of cabinet, using care to hold chassis. Remove chassis.
20. Remove octal plug from upper right corner of TV chassis. This cable leads to resistor chassis.
21. Remove two screws holding resistor chassis to cabinet. Remove chassis.
22. Remove four hex head nuts 11/32" holding speaker to cabinet. Remove speaker.
23. Remove bayonet plug from center of TV chassis. This cable goes to audio amplifier chassis.
24. Remove two phillips head screws holding antenna terminal strip to upper left of cabinet.
25. Remove two 3/8" hex head bolts holding TV chassis to cabinet, holding chassis to prevent it falling. Remove TV chassis.
26. To remove picture tube housing, remove three 5/8" hex nuts holding picture tube housing to cabinet. Lift unit and remove.
27. Remove four screws holding on-off switch to control panel of cabinet.
28. Remove four screws holding automatic on-off switch to inside corner of control panel. Remove on-off switch wiring.

RADIO CRITICAL LEAD DRESSING

(Any lead dress should be made before alignment)

1. Lead from pin 5, tube V43, to terminal "C" on transformer L37 should be dressed close to chassis.

2. Leads to terminals "C" and "D" on transformer L38 should be dressed close together.

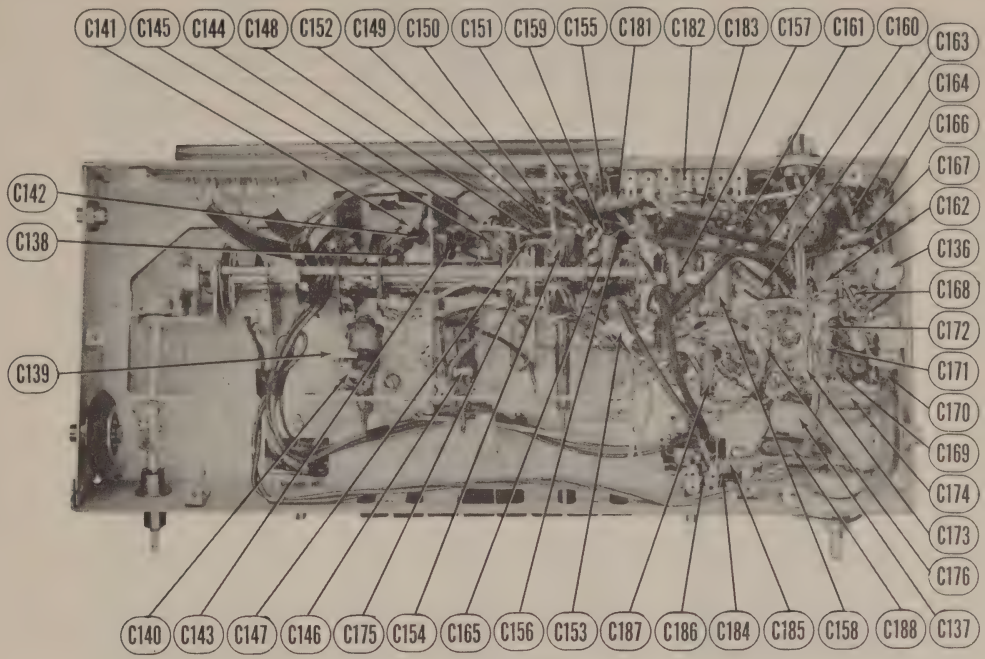
3. The following capacitors must be dressed close to the chassis with leads kept as short as possible: C157, C158, C168, C170, C174 and C173.

4. All FM coil connections must be soldered in exact place as the original. (One-sixteenth inch difference in length may be excessive.)

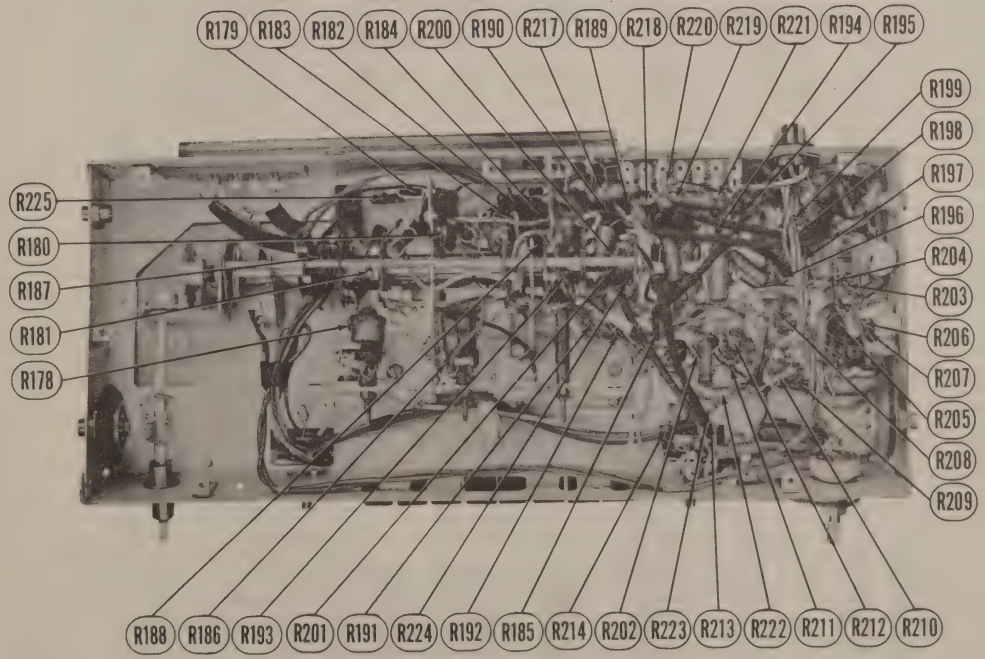
5. Lead from pin 7, tube V49, must be dressed away from lead to terminal "D" of transformer L48.

6. All RF and IF wiring in the receiver is critical as to length and placement. It is therefore important when servicing, that extreme care should be taken so as not to disturb more of the wiring than absolutely necessary.

NOTE: Keep tuning capacitor rotor grounding brushed clean and making good contact.



RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



RADIO CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATON

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		RCA PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6J6	6J6	7BF	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	4th Video IF	6AG5	6AG5	7BD	
V8	Video Det. - AGC Rect.	6AL5	6AL5	6BT	
V9	Video Amp.	6AU6	6AU6	7BK	
V10	Video Output	6V6GT	6V6GT	7AC	
V11	DC Restorer-AGC Diode	6AL5	6AL5	6BT	
V12	AGC Amp.	6AT6	6AT6	7BT	
V13	1st Sound IF	6BA6	6BA6	7BK	
V14	2nd Sound IF	6BA6	6BA6	7BK	
V15	Limiter	6AU6	6AU6	7BK	
V16	Disc.	6AL5	6AL5	6BT	
V17	1st AF Amp.	6AT6	6AT6	7BT	
V18	Phase Inv.	6J5	6J5	6Q	
V19	Audio Output	6F6G	6F6G	7S	
V20	Audio Output	6F6G	6F6G	7S	
V21	1st Sync. Amp.	6SK7	6SK7	8N	
V22	2nd Sync. Amp.	6SH7	6SH7	8BK	
V23	3rd Sync. Amp.	6J5	6J5	6Q	
V24	Vert. Osc. -Disch.	6J5	6J5	6Q	
V25	Vert. Output	6K6GT	6K6GT	7S	
V26	Hor. Sync. Disc.	6H6	6H6	7Q	
V27	Hor. AFC	6AC7	6AC7	8N	
V28	Hor. Osc.	6K6GT	6K6GT	7S	
V29	Hor. Disch.	6J5	6J5	6Q	
V30	Hor. Output	6BG6G	6BG6G	5BT	
V31	Hor. Output	6BG6G	6BG6G	5BT	
V32	Damper	6AS7G	6AS7G	8BD	
V33	Damper	5V4G	5V4G	5L	
V34	HV Rectifier	1B3GT	1B3GT	3C	
V35	HV Rectifier	1B3GT	1B3GT	3C	
V36	HV Rectifier	1B3GT	1B3GT	3C	
V37	LV Rectifier	5U4G	5U4G	5T	
V38	LV Rectifier	5U4G	5U4G	5T	
V39	LV Rectifier	5U4G	5U4G	5T	
V40	LV Rectifier	5U4G	5U4G	5T	
V41	Projection Tube	5TP4	5TP4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1	70	400	72621	AF16J	UP8045			Filter
C2A	70	250	72622	AF1414F4B	UP9CJ350		TVL-50	▲ Filter
B	70	250						■ Filter
C	20	50						▲ Hor. Output Cath. Bypass
C3A	70	400	72623	AF862JA †	UP9BJ857		TVL-47	▲ Filter
B	10	400						▲ Hor. Output Screen Decoupling
C4A	100	15	72624	AF4D5020P	UP7CJ269			▲ Hor. Cent. Cont. Bypass
B	250	15						■ Hor. Cent. Cont. Bypass
C	20	150						▲ Damper Filter
C5A	40	450	72612	AF8J20D10B	UP9CJ1002		D12677	▲ Filter
B	100	150						■ Filter
C	50	50						▲ Vert. Output Cath. Bypass
C6A	80	450	71780	AF164J	UP9BJ857		TVL-47	▲ Filter
B	10	450						▲ Vert. Output Decoupling
C7A	40	450	72169	†AF82J2H	UP9DJ784		TVL-59	▲ Filter
B	10	450		†PRS450/40				■ Low Pass Filter
C	35	350						▲ Filter
D	10	350						Decoupling
C8	1000	3	72611	AF200A			TVL-42	Vert. Cent. Cont. Bypass
C9A	30	450	72955	AFH6J10J8A	UP9CJ884		D12684	▲ Filter
B	50	400						■ Filter
C	40	25						▲ Filter
C10	10			CN10JNPO		NPOK-10		Fixed Trimmer
C11	10			CN10JNPO		NPOK-10		Fixed Trimmer
C12	270		71540	GP270M		GP2K-250		RF Coupling
C13	270		71540	GP270M		GP2K-250		RF Coupling
C14	1500		71501	GP1500M		GP2L-0015		RF Bypass
C15	1.5		71500	CN1.5CNPO		NPOK-1.5		Neutralizing
C16	1.5		71500	CN1.5CNPO		NPOK-1.5		Neutralizing
C17	1500		71501	GP1500M		GP2L-0015		RF Decoupling
C18	.68		71504					RF Coupling
C19	4.7		71520					RF Coupling
C20	2.2		71502					RF Coupling
C21	22		33101	CN22JNPO				Fixed Trimmer
C22	1500		71501	GP1500M		GP2L-0015		Mixer Decoupling
C23	68			CN68JNPO				Fixed Trimmer
C24	1500		71501	GP1500M		GP2L-0015		Filament Bypass
C25	1500		71501	GP1500M		GP2L-0015		Osc. Decoupling
C26	10		45466	CN10JNPO		NPOK-10		Fixed Trimmer *
C27	4.7		71520	CN4.7DNPO				Osc. Feedback
C28	4.7		71520	CN4.7DNPO				Osc. Feedback
C29	270	500	39638	1468-00025	5W5T25	GP2K-250	1FM-325	IF Coupling
C30	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C31	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoupling
C32	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Decoupling
C33	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	1st V. IF Fil. Bypass
C34	82	1000	73090	1468-000075	5W5T1	GP2K-75	1FM-475	IF Coupling
C35	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	AGC Filter
C36	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	2nd V. IF Fil. Bypass
C37	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoupling
C38	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Decoupling
C39	43			CN43JNPO				Fixed Trimmer
C40	270	1000	73091	1468-00025	5W5T25	GP2K-250	1FM-215	IF Coupling

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C41	.05	400	70615	P488-05	PTE4S5		TM-15	AGC Filter
C42	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	3rd V. IF Fil. Bypass
C43	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoupling
C44	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Decoupling
C45	270	1000	73091	1468-00025	5W5T25	GP2K-250	1FM-325	IF Coupling
C46	82		71514	GP100K	5W5T1	GP1K-100	1FM-31	4th V. IF Cath. Bypass
C47	75			CN75JNPO		NPOM-75		Fixed Trimmer
C48	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	4th V. IF Fil. Bypass
C49	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	4th V. IF Decoupling
C50	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Decoupling
C51	270	1000	73091	1468-00025	5W5T25	GP2K-250	1FM-325	IF Coupling
C52	33		38868	GP33K	5W5Q4	NPOL-33	1FM-44	IF Coupling
C53	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Video Det. Fil. Bypass
C54	10	500	72615	1468-00001	5W5Q1	GP1K-10	MS-41	V. Diode Filter
C55	.05	400	70615	P488-05	PTE4S5		TM-15	Video Coupling
C56	.05	600	70636	P688-05	PTE6S5		TM-15	Video Coupling
C57	680	500	53274	1468-00075	1W5T7	GP2K-750	1FM-37	2nd V. Amp. Cath. Bypass
C58	.05	600	72996	P688-05	PTE6S5		TM-15	Video Coupling
C59	.05	600	72996	P688-05	PTE6S5		TM-15	Video Coupling
C60	.25	200	70618	P488-25	GT2P25		TC-2	DC Res. Decoupling
C61	.001	600	70600	P688-001	PTE6D1	GP2L-001	TM-21	AGC Diode Filter
C62	.25	200	70618	P488-25	GT2P25		TC-2	AGC Filter
C63	.25	200	70618	P488-25	GT2P25		TC-2	AGC Filter
C64	.5	200	70619	P288-5	GT2P5		TC-5	AGC Filter
C65	.1	200	70617	P288-1	PTE4P1		TM-1	AGC Filter †
C66	.25	200	70618	P488-25	GT2P25		TC-2	AGC Coupling
C67	.1	400	70617	P488-1	PTE4P1		TM-1	AGC Filter
C68	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	1st S. IF Cath. Bypass
C69	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	1st S. IF Decoupling
C70	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	2nd S. IF Grid Filter
C71	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	2nd S. IF Cath. Bypass
C72	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	2nd S. IF Decoupling
C73	51		71771	GP51M	5W5Q5	GP1K-50	1FM-45	Limiter Grid Filter
C74	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	Limiter Decoupling
C75	470	500	39644	1468-0005	5W5T5	GP2K-500	1FM-35	RF Bypass
C76	.005	400	70606	P688-005	PTE6D5	GP2M-005	TM-25	Audio Coupling
C77	.01	200	70610	P488-01	PTE4S1	GP2-385-01	TM-11	Tone Compensation
C78	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Audio Coupling
C79	.001	400	70600	P688-001	PTE6D1	GP2L-001	TM-21	AF Plate Bypass
C80	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Audio Coupling
C81	.05	200	71551	P288-05	PTE4S5		TM-15	Audio Coupling
C82	.02	600	70632	P688-02	PTE6S2		TM-12	Audio Coupling
C83	.02	600	70632	P688-02	PTE6S2		TM-12	Audio Coupling
C84	.0035	1000	70646	P1088-0033	PTE16D3		MB-23	Output Plate Bypass
C85	.0035	1000	70646	P1088-0033	PTE16D3		MB-23	Output Plate Bypass
C86	.05	400	70615	P488-05	PTE4S5		TM-15	Sync. Coupling
C87	.1	400	70617	P488-1	PTE4P1		TM-1	1st Sync. Amp. Plate Dec.
C88	270	1000	73091	1468-00025	5W5T25	GP2K-250	1FM-325	Sync. Coupling
C89	.05	400	70615	P488-05	PTE4S5		TM-15	Sync. Coupling
C90	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Vert. Sync. Coupling
C91	.002	400	70601	P688-002	PTE6D2	GP2M-002	TM-22	Integrator Net.
C92	.005	400	70606	P688-005	PTE6D5	GP2M-005	TM-25	Integrator Net.
C93	.005	400	70606	P688-005	PTE6D5	GP2M-005	TM-25	Integrator Net.
C94	4700	500	72524	1467-005	1D5D5	GP2M-005	1FM-25	Vert. Osc. Grid Cap.
C95	.05	1000	73093	P1088-05	GT16S5		TR-15	Vert. Discharge
C96	1000	500	72616	1468-001	1W5D1	GP2L-001	1FM-21	RF Bypass
C97	.06	1600	73092	1684-06	GT16S5		TR-15	Vert. Osc. Plate Dec.
C98	.1	1000	70659	1084-1				Vert. Sweep Coupling
C99	.1	200	70617	P288-1	PTE4P1		TM-1	RF Bypass
C100	1500		71501	GP1500M	1W5D15	GP2L-0015	1FM-215	RF Bypass
C101	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Hor. Sync. Coupling
C102	1000	500	54346	1468-001	1W5D1	GP2L-001	1FM-21	Hor. Osc. Grid Filter
C103	82	500	72614					Hor. Sync. Coupling
C104	.015	400	71516	P488-015	PTE6S15			Fixed Trimmer
C105	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	AFC Filter
C106	.004	400	70605	P688-004	PTE6D4		TM-24	AFC Filter
C107	.05	400	70615	P488-05	PTE4S5		TM-15	Hor. Osc. Coupling
C108	.015	400	71516	P488-015	PTE6S15			Phase Shifter
C109	1200		72638					Phase Shifter
C110	.05	400	70615	P488-05	PTE4S5		TM-15	Hor. AFC Cont. Screen Bypass
C111	3900	500	39666	1467-004	1D5D4		1FM-24	AFC Coupling
C112	3900	500	39666	1467-004	1D5D4		1FM-24	Hor. Osc. Grid Cap.
C113	1000	500	39652	1468-001	1W5D1	GP2L-001	1FM-21	Hor. Osc. Grid Filter
C114	.05	600	70636	P688-05	PTE6S5		TM-15	Hor. Osc. Screen Bypass
C115	390	1000	73094	1468-0004	5W5T4		1FM-34	Differentiator Net.
C116	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Hor. Sync. Coupling
C117	.05	600	70636	P688-05	PTE6S5		TM-15	Hor. Sweep Coupling
C118	1000	500	39652	1468-001	1W5D1	GP2L-001	1FM-21	Hor. Feedback
C119	150	1000	73095					Hor. Sweep Coupling
C120	.01	400	70610	P488-01	PTE4S1	GP2-335-01	TM-11	Damper Cath. Bypass
C121	1000	500	39652	1468-001	1W5D1	GP2L-001	1FM-21	RF Bypass
C122	.1	600	70638	P688-1	PTE6P1		TM-1	Decoupling
C123	.05	400	71615	P488-05	PTE4S5		TM-15	Acc. Anode Bypass
C124	1000	500	39652	1468-001	1W5D1	GP2L-001	1FM-21	Filament Bypass
C125	1000	500	39652	1468-001	1W5D1	GP2L-001	1FM-21	Filament Bypass
C126	500	10000	71450	HV500		410-500		HV Filter
C127	500	10000	71450	HV500		410-500		HV Filter
C128	500	10000	71450	HV500		410-500		HV Filter
C129	500	10000	71450	HV500		410-500		HV Filter
C130	500	10000	71450	HV500		410-500		HV Filter
C131	500	10000	71450	HV500		410-500		Focus Anode Bypass
C132	.01	400	71770	P488-01	PTE4S1		TM-11	Line Filter
C133	.01	400	71770	P488-01	PTE4S1		TM-11	Line Filter
C134	56							Fixed Trimmer *

* Not used in all models.
† Some models use .01MFD in this application.
‡ Omit bypass section. Parallel sections to obtain desired capacity.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Part No.	IRC Part No.	CLAROSTAT Part No.	INSTALLATION NOTES
R1	1 Meg.	½	70143	Q13-137X	T-98	Volume control, tapped at 250KΩ
R2A	1 Meg.	½	72758		97Q11-8	Vert. hold control) Dual Concentric
B	50KΩ	½				Horiz. hold control) Dual Concentric
R3A	100KΩ	½	71971		97Q11-1	Contrast control) Dual Concentric
B	50KΩ	½				Brightness control) Dual Concentric
R4	500KΩ	½	71441	Q11-114	M-19-S	Vert. linearity control
R5	2.5 Meg	½	71440	Q11-339		Height control
R6	30Ω	3	72188	W-30X15	58-30CT	Vert. centering control-Wire Wound
R7	500KΩ	½	71441	Q11-114	M-19-S	Horiz. drive control
R8	30Ω	3	72181	W-30	43-30	Horiz. centering control-Wire Wound
R9	250KΩ	½	72183	Q13-130	M-94-Z	Horiz. linearity control
R10	15 Meg.	½	72183			Focus control

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Part No.	IRC Part No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R11	150Ω	½			RF Grid
R12	150Ω	½			RF Grid
R13	100Ω	½			Bias Filter
R14	4700Ω	½			RF Plate
R15	4700Ω	½		BTS-4700	RF Plate
R16	100KΩ	½		BTS-1000	RF Decoupling
R17	1 Meg.	½			Mixer Grid
R18	10KΩ	½		BTS-10K	Mixer Grid Shunt
R19	100KΩ	½		BTS-1000	Mixer Decoupling
R20	150Ω	½			Decoupling Network
R21	4700Ω	½			Osc. Plate
R22	47Ω	½			Osc. Cathode
R23	100KΩ	½			Osc. Grid
R24	100KΩ	½			Osc. Grid
R25	10KΩ 5%	½			1st Video IF Grid
R26	39Ω	½			1st Video IF Cathode
R27	1000Ω 20%	½			1st Video IF Decoupling
R28	1500 20%	½			Decoupling Network
R29	1500 20%	½			Decoupling Network.
R30	10000 20%	½		BTS-1000	AGC Network
R31	10KΩ 5%	½			2nd Video IF Grid
R32	39Ω	½			2nd Video IF Cathode
R33	10000 20%	½			2nd Video IF Decoupling
R34	1500 20%	½			Decoupling Network
R35	10000 20%	½		BTS-1000	AGC Network
R36	4700Ω 5%	½			3rd Video IF Grid
R37	39Ω	½			3rd Video IF Cathode
R38	27000 5%	½			3rd Video IF Plate
R39	10000 20%	½			3rd Video IF Decoupling
R40	1500 20%	½			Decoupling Network
R41	150Ω	½			4th Video IF Cathode
R42	39000 5%	½			4th Video IF Plate
R43	10000 20%	½			4th Video IF Decoupling
R44	1500 20%	½			Decoupling Network
R45	2900Ω	½		BTS-3900	Video Det. Diode Load
R46	470KΩ	½		BTS-470K	Video Amp. Grid
R47	3300Ω	½		BTS-3300	Video Amp. Plate
R48	6800Ω 20%	1		BTA-6800	Filter
R49	470KΩ 20%	½		BTS-470K	Video Output Grid
R50	22KΩ	1		BW-J-230	Video Output C athode
R51	2200Ω	10	72813	AB-2250	Video Output Plate-Wire Wound
R52	10KΩ 20%	½		BTS-10K	Phase Correction
R53	33KΩ	½		BTS-33K	Voltage Divider
R54	150KΩ 20%	½		BTS-150K	Voltage Divider
R55	27KΩ	½		BTS-27K	DC Rest. Load
R56	1 Meg. 20%	½		BTS-1 Meg.	DC Rest. Load
R57	22KΩ 20%	½		BTS-22K	Isolation
R58	100KΩ	½		BTS-100K	Picture Tube Grid
R59	2. 2 Meg.	½		BTS-2. 2 Meg.	Voltage Divider -See Note
R60	10KΩ 5%	½		BTS-10K-5%	AGC Diode Load
R61	33KΩ	1		BW-J-330	Voltage Divider
R62	22KΩ 5%	1		BTA-22K-5%	Voltage Divider
R63	82KΩ	½		BTS-82K	AGC Diode Load
R64	100KΩ	½		BTS-100K	AGC Filter
R65	470KΩ	½		BTS-470K	AGC Filter
R66	56KΩ	½		BTS-56K	AGC Amp. Plate
R67	1 Meg.	½		BTS-1 Meg.	Voltage Divider
R68	100KΩ	½		BTS-100K	AGC Network
R69	1 Meg.	½		BTS-1 Meg.	Voltage Divider
R70	27KΩ	½		BTS-27K	AGC Diode Load
R71	220KΩ	½		BTS-220K	Voltage Divider
R72	100Ω	½			1st Sound IF Cathode
R73	1000Ω 20%	½			1st Sound IF Decoupling
R74	470KΩ 20%	½			2nd Sound IF Grid
R75	100Ω	½			2nd Sound IF Cathode
R76	1000Ω 20%	½			2nd Sound IF Decoupling
R77	22KΩ 20%	½			Limiter Grid
R78	10KΩ	1			Limiter Decoupling
R79	10KΩ	1		BTA-10K	Voltage Divider
R80	100KΩ	1		BTS-100K	Disc. Diode Load
R81	100KΩ	1		BTS-100K	De-emphasis
R82	5.1Ω	1	73067	BW-J-4.7	Disc. Filament-Wire Wound
R83	27KΩ	1		BTS-27K	Tone Compensation
R84	10 Meg. 20%	½		BTS-10 Meg.	1st AF Grid
R85	330KΩ	½		BTS-330K	1st AF Plate
R86	56KΩ	½		BTS-56K	2nd AF Grid
R87	22KΩ	½		BTS-22K	2nd AF Grid
R88	2700Ω	½		BTS-2700	2nd AF Cathode
R89	27KΩ	½		BTS-27K	2nd AF Plate
R90	220KΩ 20%	½		BTS-220K	Output Grid
R91	220KΩ 20%	½		BTS-220K	Output Grid
R92	6.8 Meg.	½		BTS-6.8 Meg.	1st Sync. Grid
R93	1 Meg.	½		BTS-1 Meg.	1st Sync. Grid
R94	470KΩ	1		BTA-4700	1st Sync. Plate
R95	4.7 Meg.	½		BTA-4700	1st Sync. Plate Decoupling
R96	1 Meg.	½		BTS-1 Meg.	2nd Sync. Grid
R97	4. 7 Meg. 20%	½		BTS-4. 7 Meg.	2nd Sync. Grid

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Part No.	IRC Part No.	IDENTIFICATION CODES
R98	6800Ω	1		BTA-6800	2nd Sync. Plate
R99	1 Meg.	½		BTS-1 Meg.	3rd Sync. Grid
R100	4700Ω	1		BTA-4700	3rd Sync. Plate
R101	3300Ω	1		BTA-3300	Decoupling
R102	22KΩ 20%	½		BTS-22K	Voltage Divider
R103	22KΩ 20%	½		BTS-22K	Integrator
R104	8200Ω	½		BTS-8200	Integrator
R105	8200Ω	½		BTS-8200	Integrator
R106	1.2 Meg.	½		BTS-1.2 Meg.	Vert. Osc. Grid
R107	1.5 Meg.	½		BTS-1.5 Meg.	Voltage Divider
R108	470KΩ 20%	½		BTS-470K	Feedback
R109	2.2 Meg.	½		BTS-2.2 Meg.	Vert. Output Grid
R110	1000Ω	½		BTS-1000	Vert. Output Cathode
R111	8200Ω 5%	½		BTS-8200-5%	Vert. Peaking
R112	1000Ω	½		BW-J-1000	Filter
R113	330KΩ	½		BTS-330K	Bias Filter
R114A	125Ω	2.5	72171		Bias Network-Wire Wound
B	9500Ω	2			Voltage Divider-Wire Wound
R115	2700Ω	1		BTA-2700	Voltage Divider
R116	470KΩ 20%	½		BTS-470K	Horiz. Sync. Disc. Load
R117	470KΩ 20%	½		BTS-470K	Horiz. Sync. Disc. Load
R118	470KΩ 20%	½		BTS-470K	Horiz. Sync. Disc. Load
R119	470KΩ	½		BTS-470K	Horiz. AFC Filter Network
R120	560Ω	½		BTS-560	Horiz. AFC Grid
R121	22KΩ	2		BT-2-22K	Horiz. AFC Plate
R122	47KΩ	1		BTA-47K	Horiz. AFC Screen
R123	100KΩ 20%	½		BTS-100K	Horiz. AFC Screen
R124	27KΩ	½		BTA-27K	Voltage Divider
R125	10Ω 6%	½		BW-J-10-5%	Phase Shifter
R126	27KΩ	½		BTS-27K	Horiz. Osc. Grid
R127	33000Ω	10	48207	AB-3500	Horiz. Osc. Plate-Wire Wound
R128	15KΩ	1		BTA-15K	Horiz. Osc. Screen
R129	6800Ω 20%	½		BTS-6800	Horiz. Peaking
R130	220KΩ	½		BTS-220K	Horiz. Discharge Grid
R131	470KΩ	½		BTS-470K	Horiz. Discharge Plate
R132	1000 20%	½			Parasitic Supp.
R133	100Ω 20%	½			Parasitic Supp.
R134	47Ω 20%	½			Parasitic Supp.
R135	100Ω 20%	½			Parasitic Supp.
R136	100Ω 20%	½			Parasitic Supp.
R137	47Ω 20%	½			Parasitic Supp.-See Note
R138	220KΩ	½		BTS-220K	Horiz. Output Grid
R139	80Ω	5	72631	AB-75	Horiz. Output Cathode-Wire Wound
R140	100Ω 20%	½			Parasitic Supp.
R141	2200Ω 20%	½		BTS-2200	Feedback
R142	27KΩ	1		BTA-27K	Damper Grid
R143	180KΩ	½		BTS-180K	Damper Grid Filter
R144	4.7Ω	½	72633		HV Filament-Wire Wound
R145	4.7Ω	½	72633		HV Filament-Wire Wound
R146	4.7Ω	½	72633		HV Filament-Wire Wound
R147	1.5 Meg.	2			Voltage Divider
R148	1.5 Meg.	2			Voltage Divider
R149	1.5 Meg.	2			Voltage Divider
R150	1.5 Meg.	2			Voltage Divider
R151	2.2 Meg.	2			Voltage Divider
R152	10 Meg.	2			Voltage Divider
R153	10 Meg.	2			Voltage Divider
R154	10 Meg.	2			Voltage Divider
R155	10 Meg.	2			Voltage Divider
R156	1 Meg.	2			Voltage Divider
R157	100KΩ	1			HV Filter
R158	68KΩ	1		BTA-68K	Voltage Divider
R159	33KΩ	½		BTS-33K	Voltage Divider
R160	2200Ω	1		BTA-2200	Bleeder
R161	4700Ω	1		BTS-4700	Bleeder
R162	68KΩ	2		BT-2-68K	Bleeder
R163	2450Ω	16.5	72184	DG-2500	Bleeder-Wire Wound
R164	68KΩ	2		BT-2-68K	Bleeder
R165	120KΩ	1		BTA-120K	Bleeder
R166	39KΩ	2		BT-2-39K	Bleeder
R167	68KΩ	1		BTA-68K	Bleeder
R168	68KΩ	2		BT-2-68K	Bleeder
R169	120KΩ	1		BTA-120K	Bleeder
R170	39KΩ	2		BT-2-39K	Bleeder
R171	68KΩ	1		BTA-68K	Bleeder
R172A	840Ω	10.5	72170	DG-850	Bleeder -Wire Wound
B	970Ω	9		AB-1000	Filter -Wire Wound
R173A	2750Ω	10	71660	AB-3000	Bleeder-Wire Wound
B	2520Ω	4		AB-2500	Bleeder-Wire Wound
C	180Ω	3.5			Bias Network-Wire Wound
R174A	2000Ω	5	48344	AB-2000	Bleeder-Wire Wound
B	2000Ω	5	48344	AB-2000	Bleeder-Wire Wound
C	2000Ω	5	48344	AB-2000	Bleeder-Wire Wound

Note. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA RCA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.
T1	117VAC @ 2.5A	900VCT .260ADC	5VAC @ 8A SEC. 4 6.3VAC @ 3.8A	6.3VAC Tap @ 5VAC @ 7.5A	72176			
T2	117VAC @ 1.55A	720VCT .180ADC	5VAC @ 3A	6.3VAC @ 7.5A	72177	P-6315 #	PH-200	P-3063

Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA RCA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.
T3	117VAC at 1. 0TA	750VCT .140ADC	5VAC at 3A	6.3VAC at 2A	37048	P-6014 #	PH-145	P-2954 #

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA RCA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	NOTES
T4	37Ω	340 Tap @ 8Ω 1400Ω	71428				Hor. Osc. Transformer
T5	180Ω	1400Ω	71775	A-8121	TSO-1	A-4005	Vert. Osc. Transformer
T6	180Ω Tap @ 30Ω	SEC. 1 6Ω SEC. 2 6Ω SEC. 3 6Ω SEC. 4 2.96Ω tap @ .46Ω & .3Ω	72178				Hor. Output Trans.
T7	700Ω	19Ω	72952	A-8115	TSO-1		Vert. Output Trans.
T8A	14Ω		72196				Hor. Deflection Coil
B	68Ω						Vert. Deflection Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA RCA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	INSTALLATION NOTES
T9	11KΩ CT	2.3Ω	600Ω CT	.3Ω	71661	A-3823	RO-110	A-2901	

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA RCA Part No.	JENSEN Part No.	QUAM Part No.	NOTES
SP1	1060Ω	2.3 Ω	71144	ST-744 MOD. P12-8	12R10	
	CONE DIA.	V. C. DIA.				
SP2	12"	1 1/2"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT	REPLACEMENT DATA RCA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	INSTALLATION NOTES
L1	.255A	75Ω	1.8 Henries	72179	C-2326 †	TR-4225	C-2991 †	† Drill one new
L2	.150A	70Ω	2. 2 Henries	72167	C-2325 †	TR-4225	C-2974 †	mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA Part No.	MEISSNER Part No.	NOTES
L3	Ant. Input	0Ω		71507		Part of tuner.
L4	Interference Trap	0Ω		72239		Part of tuner includes 10MMF capacitor.
L5	Interference Trap	0Ω		72239		Part of tuner includes 10MMF capacitor.
L6	Fil. Choke	0Ω		71505		Part of tuner.
L7	Mixer Grid Trap	0Ω		71506		Part of tuner.
L8	1st Video IF & Sound Trap	.2Ω	0Ω	71495		Part of tuner includes 68MMF capacitor. Includes 43MMF capacitor.
L9	2nd Video IF	.2Ω	0Ω	71423		Includes 56MMF capacitor.
L10	3rd Video IF	.2Ω	0Ω	71425		Includes 56MMF capacitor (not in set).
L11	4th Video IF	.2Ω		73708		Includes 75MMF capacitor.
L12	Sound Trap	.1Ω		71422		
L13	5th Video IF	.3Ω		71499		
L14	Peaking	5Ω		71529		120 microhenries wound on 22KΩ resistor.
L15	Peaking	8Ω		71528		250 microhenries
L16	Peaking	5Ω		71529		120 microhenries wound on 22KΩ resistor.
L17	Peaking	4Ω		71527		93 microhenries
L18	Peaking	4Ω		72808		93 microhenries wound on 10KΩ resistor.
L19	Peaking	2Ω		72618		20 microhenries.
L20	Peaking	2Ω		71793		36 microhenries.
L21	Fil. Choke	0Ω		71505		
L22	Fil. Choke	0Ω		71505		
L23	Fil. Choke	0Ω		71505		
L24	Fil. Choke	0Ω		71505		
L25	Fil. Choke	0Ω		71505		
L26	1st Sound IF	0Ω	0Ω	71434		Includes 10MMF and 33MMF capacitor.
L27	2nd Sound IF	0Ω	0Ω	71424		Includes 10MMF and 33MMF capacitor.
L28	Disc. Trans.	0Ω	0Ω	71427		Includes 2-56MMF and 47MMF capacitor.
L29	Width Cont.	.1Ω		72180		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA Part No.	NOTES
M1 M8 thru M13	Bayonet	7.5	.2	White	11765	Type #51
M14	Bayonet	7.5	.2 Blue	White	11765	Type #51 Radio dial band lights Type #47
M14	Bayonet	7.5	.15			

RCA VICTOR MODELS 8PC541, -B, -C, 9PC41A, -B, -C, 648PTK, 648PV, 741PCS

TV PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M2	RF Tuner	KRK2A	
M3	Power Switch	70155	
M4	Interlock Switch	73212	
M5	High Peaking Switch	30953	
M6	Remote Control Switch	73832	
M7	Fuse	73151	Type MDL 2.8A
	Cabinet Back	73210	Mahogany
	Cabinet Back	73211	Walnut
	Cabinet Back	73245	Toasted Mahogany
	Knob	71536	Brightness and Hor. hold for walnut and mahogany instruments.
	Knob	72569	Brightness and Hor. hold for toasted mahogany instruments.
	Knob	71534	Channel selector for walnut and mahogany instruments.
	Knob	72568	Channel selector for toasted mahogany instruments.
	Knob (MODELS 8PCS41, 8PCS41B, 8PCS41C)	71535	Contrast and Vert. hold for walnut and hmahogany instrucments.
	Knob	72565	Contrast and Vert. hold for toasted mahogany instruments.
	Knob	71533	Fine tuning for walnut and mahogany instruments.
	Knob	72567	Fine tuning for toasted mahogany instruments.
	Knob	71821	Volume and power switch for walnut and mahogany instruments.
	Knob	72800	Volume and power switch for toasted mahogany instruments.
	Knob	72824	Remote control switch brown for toasted mahogany instruments.
	Knob	71822	Remote control switch maroon for walnut or mahogany instruments.
	Mirror	70145	45 degree mirror.
	Lens	72188	Corrector lens.
	Cabinet Back	73481	Walnut
	Cabinet Back	73418	Mahogany
	Knob (MODEL 648PV)	71883	Radio tone control
	Knob	71821	Radio tuning, volume control-On-Off switch and selector switch.
	Knob	71536	Horiz. hold and brightness
	Knob	71533	Fine tuning
	Knob	71534	Channel selector.
	Knob	71535	Vert. hold and contrast
	Mirror	72187	Spherical mirror for KRK 1A
	Mirror	73325	Spherical mirror for KRK 4 (12 inch).

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V42	RF Amp.	6BA6	6BA6	7BK	Radio Chassis RK121 used with RCA 648PV
V43	Mixer	6BA6	6BA6	7BK	
V44	Oscillator	6BE6	6BE6	7CH	
V45	1st IF Amp.	6BA6	6BA6	7BK	
V46	2nd FM IF Amp. - Phono Amp.	6AU6	6AU6	7BK	
V47	3rd FM IF Amp.	6AU6	6AU6	7BK	
V48	Ratio Det.	6AL5	6AL5	6BT	
V49	DET. -AVC-AF	6AT6	6AT6	7BT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C135	15	300	32223	AF2I	UP1AJ57		EL-203	Decoupling
C136	5	50	72121	PRS150/4	BR550		TA-55	3rd IF Grid Filter
C137	5	50	72121	PRS150/4	BR550		TA-55	Stabilizing Cap.
C138	330		71919	CN330KN750		N750M-330		Fixed Padder
C139	82		71514	GP100K	5W5T1	GP1K-100	1FM-31	RF Coupling
C140	180		71922	CN180KN750		N750L-180		Fixed Trimmer
C141	220		71920	GP220M	5W5T25	GP2K-220	1FM-325	RF Coupling
C142	100		39396	GP100M	5W5T1	GP1K-100	1FM-31	AVC Filter
C143	.003	200	71921	P285-003	ZYW4D5	GP2M-003	68P3	RF Screen Bypass
C144	220		71920	GP220M	5W5T25	GP2K-220	1FM-325	RF Coupling
C145	330		71919	CN330KN750		N750M-330		Fixed Padder
C146	5.6		71930	GP5K	5W5V5	NPOK-5	MS-55	RF Coupling
C147	56		71924	GP51K	5W5Q5	GP1K-56	1FM-45	RF Coupling
C148	.003	200	71921	P285-003	ZYW4D5	GP2M-003	68P3	Mixer Cathode Bypass
C149	.003	200	71921	P285-003	ZYW4D5	GP2M-003	68P3	Mixer Screen Bypass
C150	6.8		39043			NPOK-6.8		Osc. Coupling
C151	18			GP18K		GP1K-18		Osc. Grid Cap.
C152	100		39396	GP100K	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C153	180		71922	CN180KN750		N750L-180		Fixed Trimmer
C154	.01	400	71925	P485-01	ZNW4S1	821-01	68P8	Osc. Feedback
C155	180	500	71933	1468-0002	5W5T2	GP2K-180	1FM-32	Osc. Anode Bypass
C156	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	Decoupling
C157	.01	400	71925	P485-01	ZNW4S1	821-01	68P8	Mixer Plate Decoupling
C158	.05	200	71551	P285-05	ZYW1S5		68P16	AVC Filter
C159	100		39396	GP100M	5W5T1	GP1K-100	1FM-31	Filament Bypass
C160	.005	200	71926	P285-005	ZYW4D5	811-005	68P11	RF Bypass
C161	.005	200	71926	P285-005	ZYW4D5	811-005	58P11	1st IF Screen Bypass
C162	.01	600	70631	P688-01	PTE6S1	821-01	TM-11	RF Bypass
C163	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	1st IF Plate Decoupling
C164	.002	400	71927	P485-002	ZYW4D2	GP2M-002	68P27	2nd IF Screen Bypass
C165	.01	400	71925	P485-01	ZNW4S1	821-01	68P8	Audio Coupling
C166	.01	200	71923	P285-01	ZZW1S1	821-01	68P14	2nd IF Filament Bypass
C167	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	2nd IF Plate Decoupling
C168	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	3rd IF Grid Filter
C169	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	3rd IF Screen Bypass
C170	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	3rd IF Plate Decoupling
C171	.005	200	71926	P285-005	ZYW4D5	811-005	68P11	Diode Load Cap.
C172	.005	200	71926	P285-005	ZYW4D5	811-005	68P11	Diode Load Cap.
C173	1000		71929	GP1000M	1W5D1	GP2L-001	1FM-21	RF Bypass
C174	.05	200	71551	P285-05	ZYW1S5		68P16	AVC Filter
C175	.003	200	71921	P285-003	ZYW4D5	GP2M-003	68P3	AVC Filter
C176	.005	200	71926	P285-005	ZYW4D5	811-005	68P11	De-emphasis
C177	.01	400	71925	P488-01	PTE4S1	821-01	68P8	Audio Coupling
C178	.01	400	71925	P488-01	PTE4S1	821-01	68P8	Audio Coupling
C179	.015	200	72120	P285-015	PTE6S15			Tone Compensation
C180	.015	200	72120	P285-015	PTE6S15			Tone Compensation

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C181	.05	200	71551	P285-05	PTE4S5		68P16	Audio Coupling
C182	.005	200	71926	P285-005	ZYW4D5	811-005	68P11	Tone Compensation
C183	.05	200	71551	P285-05	PTE4S5		68P16	Bias Filter
C184	.005	400	71553	P485-005	ZYW4D5	811-005	68P6	Tone Compensation
C185	.01	400	71925	P485-01	PTE4S1	821-01	68P8	Tone Compensation
C186	.0012	400	72117	P485-0015	ZYN6D1	GP2L-0012	68P1	Tone Compensation
C187	.01	200	71923	P285-01	ZZW1S1	821-01	68P14	DET-AVC-AF Fil. Bypass
C188	.01	600	71588	P688-01	PTE6S1	821-01	TM-11	Line Filter

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R175	1.5 Meg.	$\frac{1}{2}$	71596	Q18-139XX	T-95	Volume control, tapped at 250KΩ and 500KΩ
R176	2 Meg.	$\frac{1}{2}$	38401	Q13-139	M-66-Z	Bass control
R177	1 Meg.	$\frac{1}{2}$	38405	Q13-137	M-63-Z	Treble control

RESISTORS

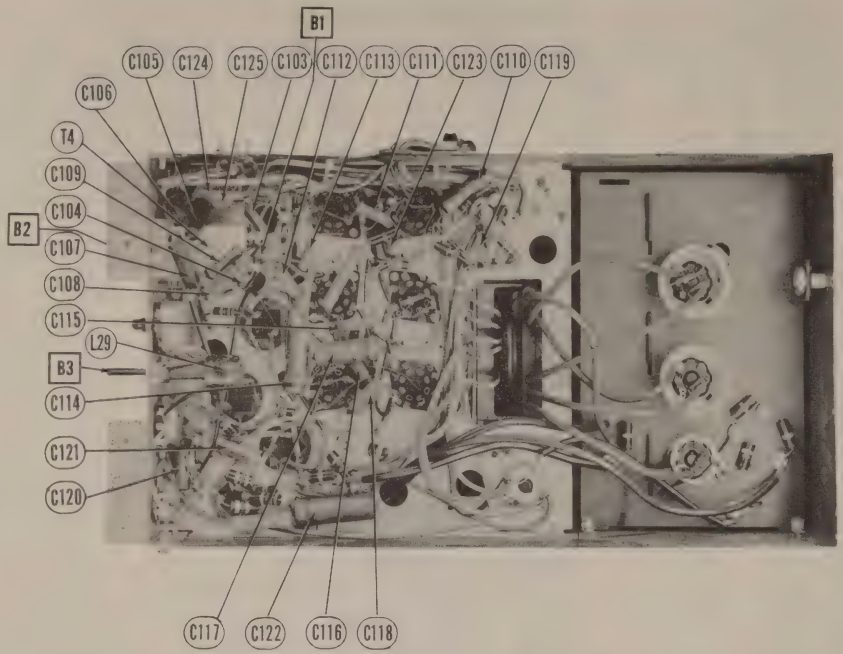
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R178	1 Meg.	$\frac{1}{2}$		BTS-1 Meg.	FM Ant. Loading
R179	1 Meg.	$\frac{1}{2}$		BTS-1 Meg.	RF Grid
R180	4700Ω	$\frac{1}{2}$		BTS-4700	RF Screen
R181	390Ω	$\frac{1}{2}$			Mixer Cathode
R182	2200Ω	$\frac{1}{2}$		BTS-2200	Mixer Cathode
R183	3.9 Meg.	$\frac{1}{2}$		BTS-3.9 Meg.	Mixer Grid
R184	27KΩ	$\frac{1}{2}$		BTS-27K	Mixer Screen
R185	2200Ω	$\frac{1}{2}$		BTS-2200	Mixer Decoupling
R186	2200Ω	$\frac{1}{2}$		BTS-2200	RF Coil Shunt
R187	3Ω	$\frac{1}{2}$	72323	BW-$\frac{1}{2}$-3.3	Series Dial Lamp-Wire Wound
R188	10Ω	$\frac{1}{2}$			Parasitic Supp.
R189	10KΩ	1		BTA-10K	Osc. Screen
R190	15KΩ	1		BTA-15K	Osc. Plate
R191	8200Ω	$\frac{1}{2}$		BTS-8200	Osc. Coil Shunt
R192	100Ω	$\frac{1}{2}$		BW-$\frac{1}{2}$-100	Decoupling
R193	22 Meg.	$\frac{1}{2}$		BTS-22 Meg.	Delayed AVC
R194	100Ω	$\frac{1}{2}$			1st IF Cathode
R195	1000Ω	$\frac{1}{2}$		BTS-1000	1st IF Screen
R196	2200Ω	$\frac{1}{2}$		BTS-2200	1st IF Plate Decoupling
R197	270KΩ	$\frac{1}{2}$		BTS-270K	Diode Load
R198	22KΩ	$\frac{1}{2}$		BTS-22K	Diode Filter
R199	15KΩ	$\frac{1}{2}$		BTS-22K	2nd FM IF Grid
R200	18KΩ	$\frac{1}{2}$		BTS-18K	2nd FM IF Screen
R201	22KΩ	$\frac{1}{2}$		BTS-22K	2nd FM IF Screen
R202	22KΩ	$\frac{1}{2}$		BTS-22K	2nd FM IF Screen Decoupling
R203	2200Ω	$\frac{1}{2}$		BTS-2200	2nd FM IF Plate Decoupling
R204	15KΩ	$\frac{1}{2}$		BTS-15K	3rd FM IF Grid
R205	22KΩ	1		BTA-22K	3rd FM IF Screen
R206	1000Ω	$\frac{1}{2}$		BTS-1000	3rd FM IF Plate Decoupling
R207	1000Ω	$\frac{1}{2}$		BTS-1000	Decoupling
R208	15KΩ	$\frac{1}{2}$		BTS-15K	De-emphasis
R209	22KΩ	$\frac{1}{2}$		BTS-22K	Ratio Det. Diode Load
R210	2.2 Meg.	$\frac{1}{2}$		BTS-2.2 Meg.	AVC Network
R211	2.2 Meg.	$\frac{1}{2}$		BTS-2.2 Meg.	AF Grid
R212	270KΩ	$\frac{1}{2}$		BTS-270K	AF Plate
R213	270Ω	$\frac{1}{2}$		BW-$\frac{1}{2}$-270	Isolation
R214	270KΩ	$\frac{1}{2}$		BTS-270K	Tone Compensation
R215	22KΩ	$\frac{1}{2}$		BTS-22K	Tone Compensation
R216	27KΩ	$\frac{1}{2}$		BTS-27K	Tone Compensation
R217	180KΩ	$\frac{1}{2}$		BTS-180K	Phono Input Shunt
R218	2.2 Meg.	$\frac{1}{2}$		BTS-2.2 Meg.	Tone Compensation
R219	22KΩ	$\frac{1}{2}$		BTS-22K	Tone Compensation
R220	470KΩ	$\frac{1}{2}$		BTS-470K	Bias Network
R221	2.2 Meg.	$\frac{1}{2}$		BTS-2.2 Meg.	Bias Network
R222	100KΩ	$\frac{1}{2}$		BTS-100K	Bias Network
R223	180KΩ	$\frac{1}{2}$		BTS-180K	Bias Network
R224	1 Meg.	$\frac{1}{2}$		BTS-1 Meg.	AVC Network
R225	22KΩ	$\frac{1}{2}$		BTS-22K	AVC Network

COILS (RF-IF)

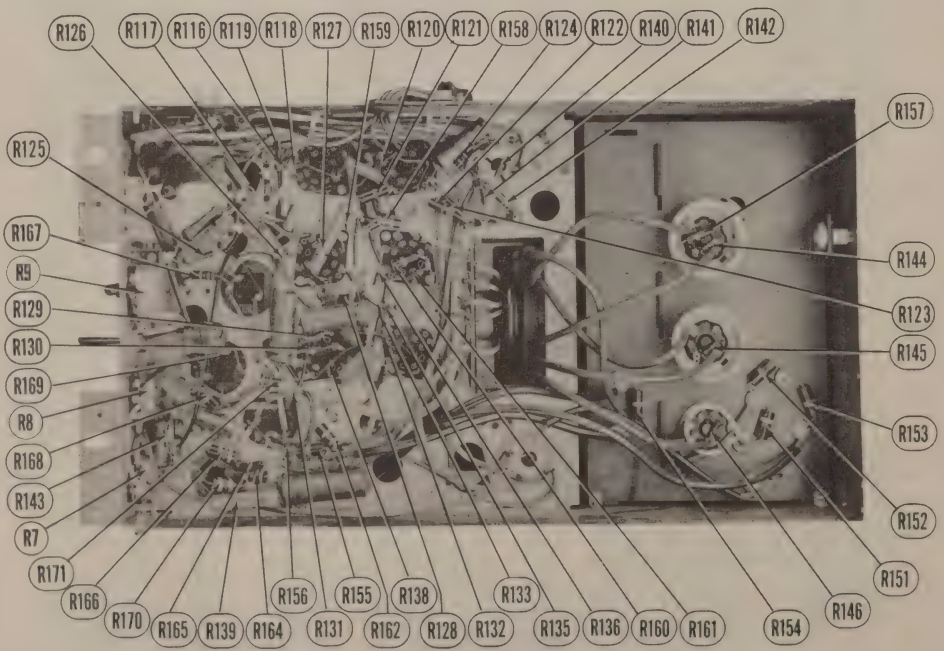
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	MEISSNER PART No.	NOTES
L30	AM Ant.	16Ω	2Ω	72071		
L31	FM Ant.	0Ω	0Ω	71940		
L32	SW Ant.	.1Ω	.1Ω	71856		
L33	RF Choke	16Ω		71939		
L34	AM RF Coil	41Ω	3.5Ω	71857		
L35	FM RF Coil	0Ω		71938		
L36	SW RF Coil	0Ω		71854		
L37	AM Osc.	4Ω		71852		
L38	FM Osc.	0Ω		71937		
L39	SW Osc.	0Ω		71853		
L40	1st FM IF	.1Ω	.3Ω	71845		
L41	1st AM IF	6Ω	6Ω	71846		
L42	2nd FM IF	.3Ω	.3Ω	71847		
L43	2nd AM IF	6Ω	6Ω	71848		
L44	3rd FM IF	.3Ω	.3Ω	71849		
L45	Driver Trans.	.3Ω	.2Ω	71935		
L46	Ratio Det. Trans.	.1Ω		71934		
L47	Fil. Choke	.5Ω		71942		
L48	Fil. Choke	.5Ω		71942		
L49	Para. Supp.	0Ω		30492		

MISCELLANEOUS

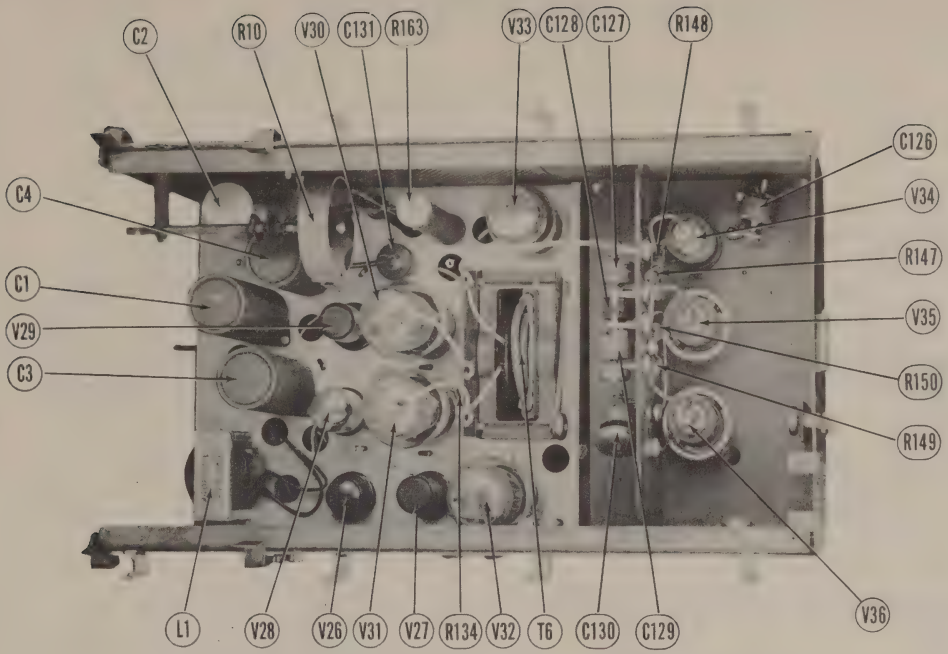
ITEM No.	PART NAME	RCA PART No.	NOTES
M16	Switch	72062	On-Off
M17	Switch	72517	TV power
M18	Bandswitch	72063	
M19	Tuning Cap.		



HORIZONTAL SWEEP CHASSIS-BOTTOM VIEW
CAPACITOR IDENTIFICATION



HORIZONTAL SWEEP CHASSIS-BOTTOM VIEW
RESISTOR IDENTIFICATION



HORIZONTAL SWEEP CHASSIS-TOP VIEW

RADIO PUSH BUTTON ADJUSTMENT

The push buttons may be set for any desired stations, either AM, FM or shortwave.

Turn the set on and allow ten minutes warm up.

Remove the push button by pulling forward and note the lock screw under the button.

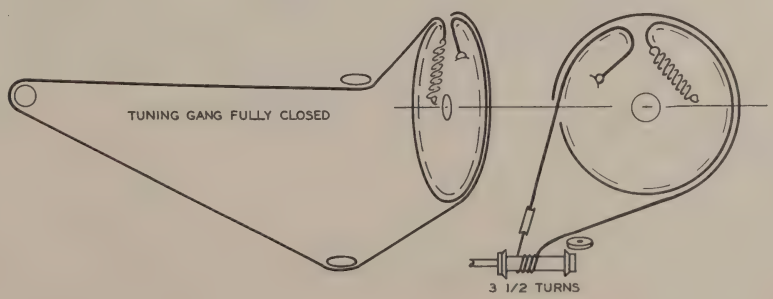
Loosen the lock screw and carefully tune in the desired station manually.

Push the push button rod in until it is against the stop.

Release the rod and tighten the lock screw.

Repeat the above procedure for each push button.

Check the setting of each button by carefully tuning in the station the button is set for, and then pressing the push button. If there is any change, repeat the adjustment procedure above.



DIAL CORD STRINGING

SWEEP CIRCUIT ADJUSTMENTS

1. VERTICAL ADJUSTMENTS

a. Turn the vertical centering control so test pattern is centered on the screen vertically.

b. Adjust the height control so test pattern fills the mask vertically.

c. Adjust the vertical linearity control for proper vertical symmetry of test pattern

The height and vertical linearity controls are interacting and steps 1a and 1b should be alternately adjusted for optimum results.

2. HORIZONTAL OSCILLATOR ALIGNMENT CHECK

While receiving a television signal turn the horizontal hold control fully counterclockwise. Remove the signal momentarily by switching to another channel and back again. The picture should pull back into synchronization.

Now turn the horizontal hold control fully clockwise and momentarily remove the signal. The picture should again pull back into synchronization when the signal is restored.

If the picture "syncs" properly under these checks, it is not necessary to align the horizontal oscillator. However, if the picture is not normal or stable proceed with the horizontal oscillator alignment.

3. SLIGHT RETOUCH ALIGNMENT

If the receiver failed in the above check at either extreme position of the horizontal hold control, it may be possible to align the horizontal oscillator by making slight adjustments.

Tune in a TV station and adjust the fine tuning control for best sound quality. Adjust vertical hold control to synchronize the picture vertically. Adjust the contrast control to slightly less than normal. Turn the horizontal hold control to the extreme position where the picture failed to "sync". Momentarily remove the signal. Adjust B2 until the picture pulls into synchronization. Check the "pull-in"points of the horizontal hold control as outlined in step 2.

4. COMPLETE HORIZONTAL OSCILLATOR ALIGNMENT

Tune in a TV station and adjust the fine tuning control for best sound quality. Adjust the vertical hold control to sync the picture vertically. Turn the contrast control to slightly less than normal. Adjust B1 until the blanking bar which may appear in the picture, moves to the right and off the raster. If ripples occur in the raster, turn B1 clockwise until the unstable condition is removed. The correct setting for this adjustment is when the end of the adjusting screw protrudes approximately $\frac{1}{2}$ inch from the bushing.

Turn the horizontal hold control fully counterclockwise and adjust B2 clockwise until the picture fails to synchronize. Now slowly turn B2 counterclockwise to the point where the picture just pulls into synchronization. Readjust B1 so that the left side of the picture is close to the left side of the raster but does not fold over.

Turn the horizontal hold control fully clockwise. The right side of the picture should be near the right side of the raster but should not fold over ; if it does readjust B1.

Momentarily remove the signal. When the signal is restored, the picture should pull into synchronization. If it does not, turn B2 counterclockwise until the picture fails into "sync".

Turn the horizontal hold control fully counterclockwise. The picture should fail into synchronization after momentary removal of the signal.

If the picture fails to synd after momentary removal of the signal at both extremes of the horizontal hold control, there may be insufficient pull-in range. However, if the picture will pull-in through 3/4 of the hold control range, operation will be satisfactory.

5. HORIZONTAL WIDTH AND LINEARITY ADJUSTMENTS.

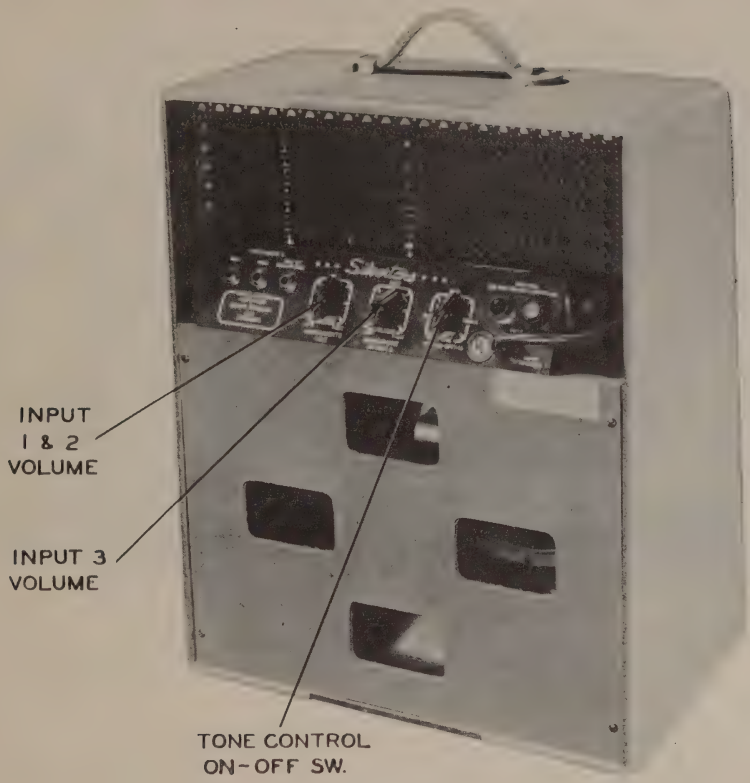
Turn the horizontal drive clockwise as far as possible without crowding the righthand side of the picture.

Adjust the horizontal linearity control so the picture is symmetrical from left to right (slight readjust of the horizontal drive may be necessary).

Adjust the width control (B3) so the picture fills the mask horizontally.

Adjust the horizontal centering to align the picture with the mask. In some cases it may be necessary to shift the picture tube in the holder to properly center the picture on the screen.

SILVERTONE MODELS 1300
(Ch. 319.200), 1300-1 (Ch. 319.200-1)



SILVERTONE MODELS 1300
(Ch. 319.200), 1300-1 (Ch. 319.200-1)

SILVERTONE MODEL 1300

TRADE NAME	Silvertone, Models 1300 (Ch. 319.200), 1300-1 (Ch. 319.200-1)
SUPPLIER	Sears, Roebuck and Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	AC Operated Musical Instrument Amplifier
TUBES(FIVE)	Types 6SL7GT 1st AF-Mic. Pre Amp., 6SL7GT AF-Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	105-125 Volts AC RATING .58 Amp. at 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	1st AF Amp.-Mic. Pre Amp.	6SL7GT	6SL7GT	8BD	
V2	2nd AF Amp.-Phase Inverter	6SL7GT	6SL7GT	8BD	
V3	Power Output	6V6GT	6V6GT	7AC	
V4	Power Output	6V6GT	6V6GT	7AC	
V5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	450	H-20048P14	▪AF43J4A*	▪UP2145C*		EL-312*	▪ Filter
B	10	450		▲PRS25/25	▲BR255A		TA-25	▲ Filter
C	50	25						Output Cathode Bypass
C2	20	450	H-20053P90	PRS450/20	BR2045A		UT-20	Decoupling See Note
C3	10	25	H-20053P5	PRS25/10	BR102A		TA-10	1st AF Amp. Cath. Bypass
C4	.03	600	H-20050P70	P688-03	PTE6S3		TM-13	Audio Coupling
C5	.006	600	H-20050P35	P688-006	PTE6D6	GP2M-0056	TM-26	Audio Coupling
C6	.05	600	H-20050P80	P688-05	PTE6S5		TM-15	Audio Coupling
C7	.02	600	H-20050P60	P688-02	PTE6S2		TM-12	Tone Compensation
C8	.05	600	H-20050P80	P688-05	PTE6S5		TM-15	Audio Coupling
C9	.05	600	H-20050P80	P688-05	PTE6S5		TM-15	Audio Coupling

* Parallel sections to obtain desired capacity.
Note. Some models use 8MFD in this application.

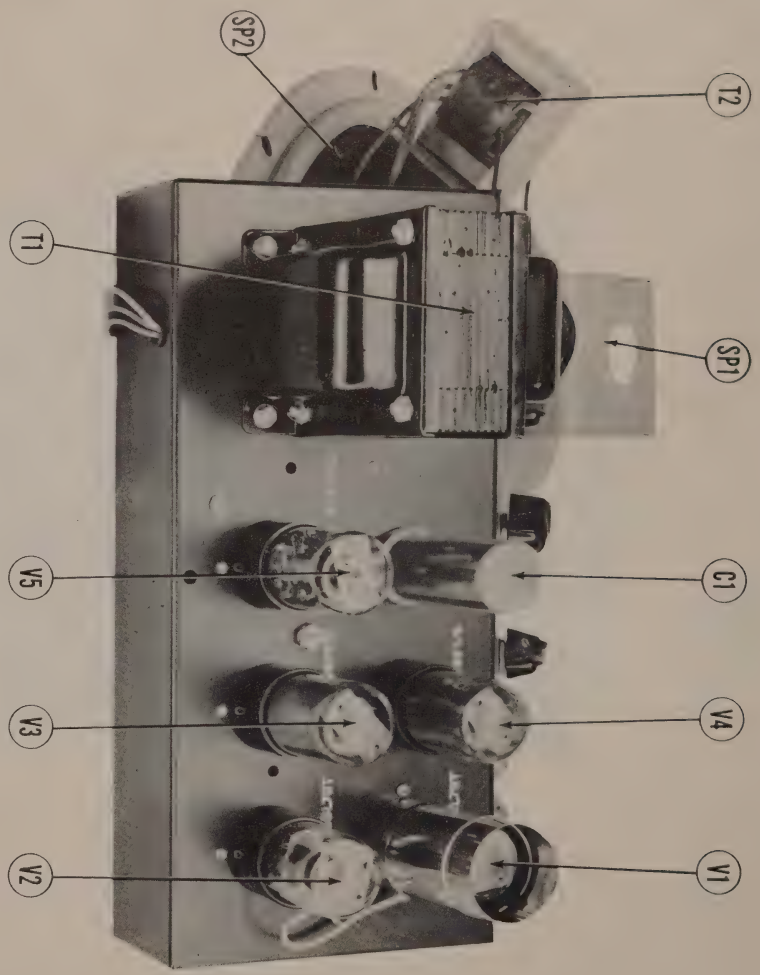
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Silvertone PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1	100KΩ		H-20066P53	Q13-128	M-51-Z	Instruments 1 and 2 Volume control
R2	500KΩ		H-20066P35	Q13-133	M-60-Z	Mic. Volume control
R3A	500KΩ		H-20066P38	Q13-133	M-60-Z	Tone control
B	Switch		Not Req.	76-1	SW-A	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R4	270KΩ	½	H-20004P91	BTS-270K	Tone Compensation
R5	270KΩ	½	H-20004P91	BTS-270K	Tone Compensation
R6	2700Ω	½	H-20004P67	BTS-2700	1st AF Cathode
R7	270KΩ	½	H-20004P91	BTS-270K	1st AF Plate
R8	470KΩ	½	H-20004P94	BTS-470K	2nd AF Grid
R9	2700Ω	½	H-20004P67	BTS-2700	2nd AF Cathode
R10	270KΩ	½	H-20004P91	BTS-270K	2nd AF Plate
R11	22KΩ	½	H-20004P78	BTS-22K	Phase Inv. Grid
R12	270KΩ	½	H-20004P91	BTS-270K	Phase Inv. Plate
R13	4.7 Meg.	½	H-20004P106	BTS-4.7 Meg.	Feedback
R14	470KΩ	½	H-20004P94	BTS-470K	Output Grid
R15	470KΩ	½	H-20004P94	BTS-470K	Output Grid
R16	200Ω	10	H-20013P23	AB-200	Output Cathode-Wire Wound
R17	47KΩ	½	H-20004P82	BTS-47K	Decoupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .58A	600VCT .082ADC	5VAC @ 2A	6.3VAC @ 1.8A	H-20076	P-6012 #	P-2952 #	PV-70A

Add series resistor to reduce plate voltage. Mount vertically with universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	7.8KΩ CT	3.9Ω	380Ω CT	.3Ω	Part of H-10K2	A-3852	A-2904	RO-401	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	610Ω	3.9Ω	H-10K2		10E60 †	† Remount output transformer
	CONE DIA.	V. C. DIA.				
SP2	9 1/2"	1"				

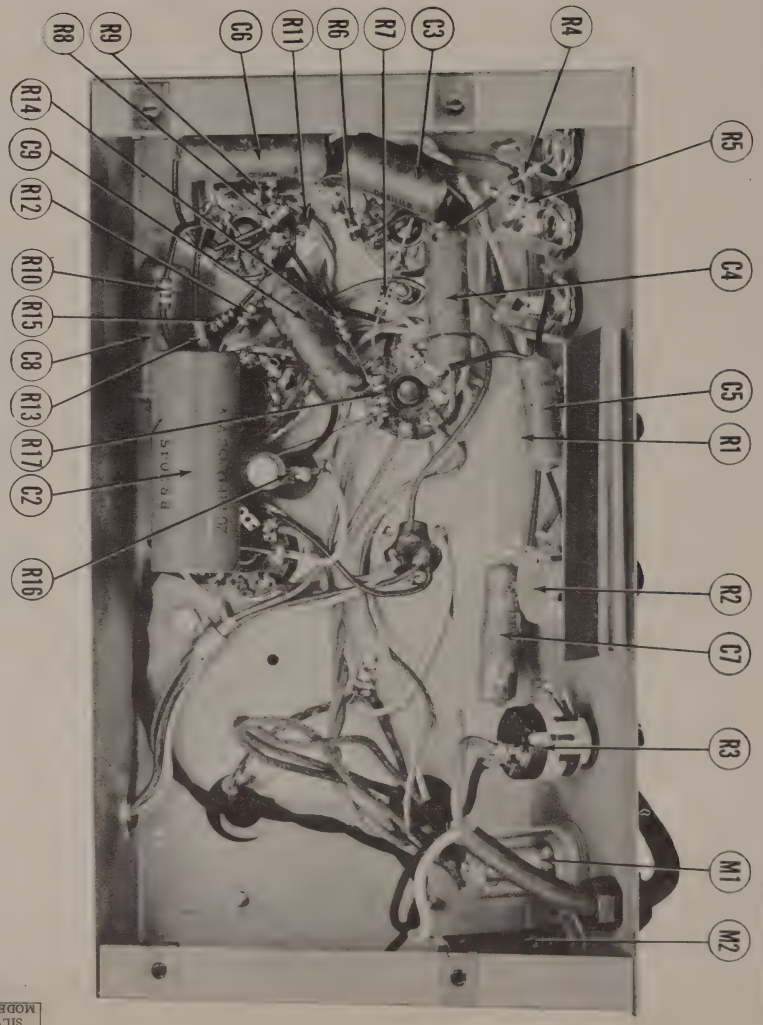
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SILVERTONE PART No.		
M1	Bayonet	6-8	.25	Blue	H-20044P14		Type #44

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	Fuse Knob	H-20043P1 H-292-1L	3AG 2 Amp.

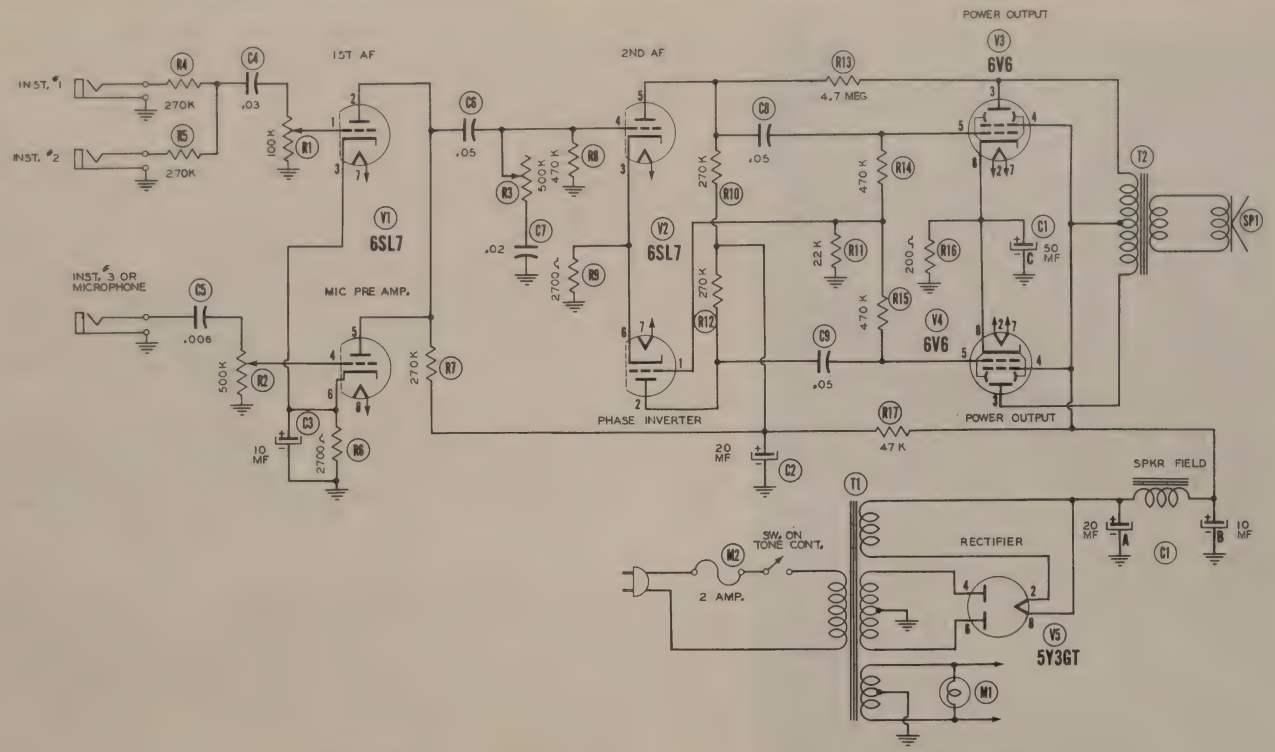
CHASSIS—BOTTOM VIEW



SET 90 FOLDER 10

SILVERTONE MODEL 1300

SILVERTONE MODEL 1300



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	0V.	75VDC	1.2VDC	0V.	75VDC	1.2VDC	#3.2VAC	#3.2VAC
V 2	6SL7GT	0V.	115VDC	1.6VDC	0V.	112VDC	1.6VDC	#3.2VAC	#3.2VAC
V 3	6V6GT	0V.	#3.2VAC	270VDC	275VDC	0V.	200VDC	#3.2VAC	15VDC
V 4	6V6GT	0V.	#3.2VAC	270VDC	275VDC	0V.	200VDC	#3.2VAC	15VDC
V 5	5Y3GT	0V.	330VDC	0V.	300VAC	0V.	300VAC	0V.	330VDC

6.3VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	100KΩ	†310KΩ	2.7KΩ	500KΩ	†310KΩ	2.7KΩ	.1Ω	.1Ω
V 2	6SL7GT	22KΩ	†310KΩ	2.7KΩ	470KΩ	†310KΩ	2.7KΩ	.1Ω	.1Ω
V 3	6V6GT	0Ω	.1Ω	†750Ω	†580Ω	470KΩ	†47KΩ	.1Ω	200Ω
V 4	6V6GT	0Ω	.1Ω	†750Ω	†580Ω	470KΩ	†47KΩ	.1Ω	200Ω
V 5	5Y3GT	0Ω	80KΩ	Inf.	220Ω	0Ω	210Ω	Inf.	80KΩ

† MEASURED FROM PIN 8 OF V5.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PHOTOFACT* Folder

TELE-TONE MODEL
TV-208

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TELE-TONE MODEL
TV-208

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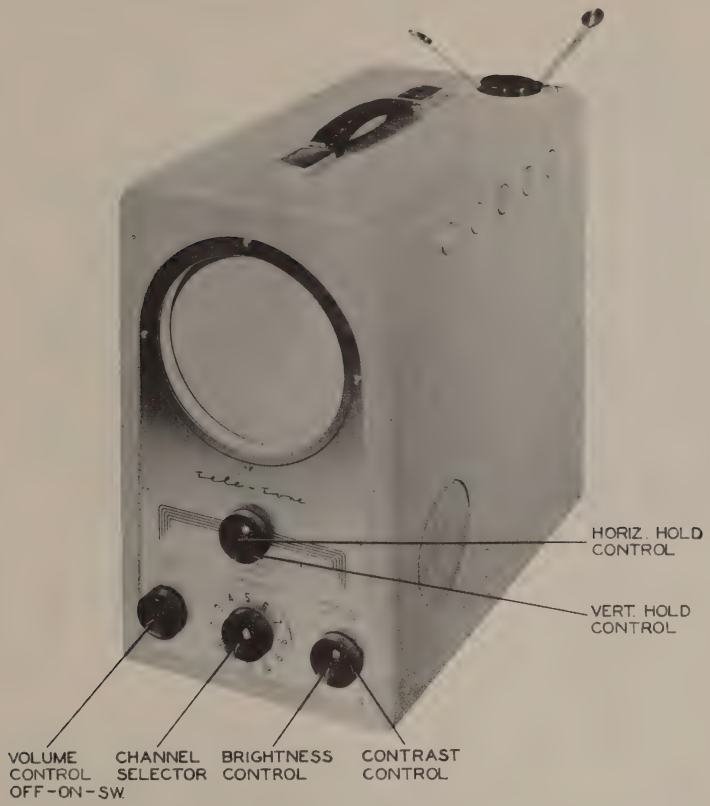
Date 3/50 Set No. 90—Folder No. 11



TELE-TONE
MODEL TV-208

TRADE NAME	Tele-Tone Model TV-208
MANUFACTURER	Tele-Tone Radio Co., 540 W. 58th St., New York 19, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty Two
POWER SUPPLY	110 - 120 Volts AC - 60 Cycle
TUNING RANGE	Channels 2 thru 13
RATING	.95 Amp. @ 117 Volts AC

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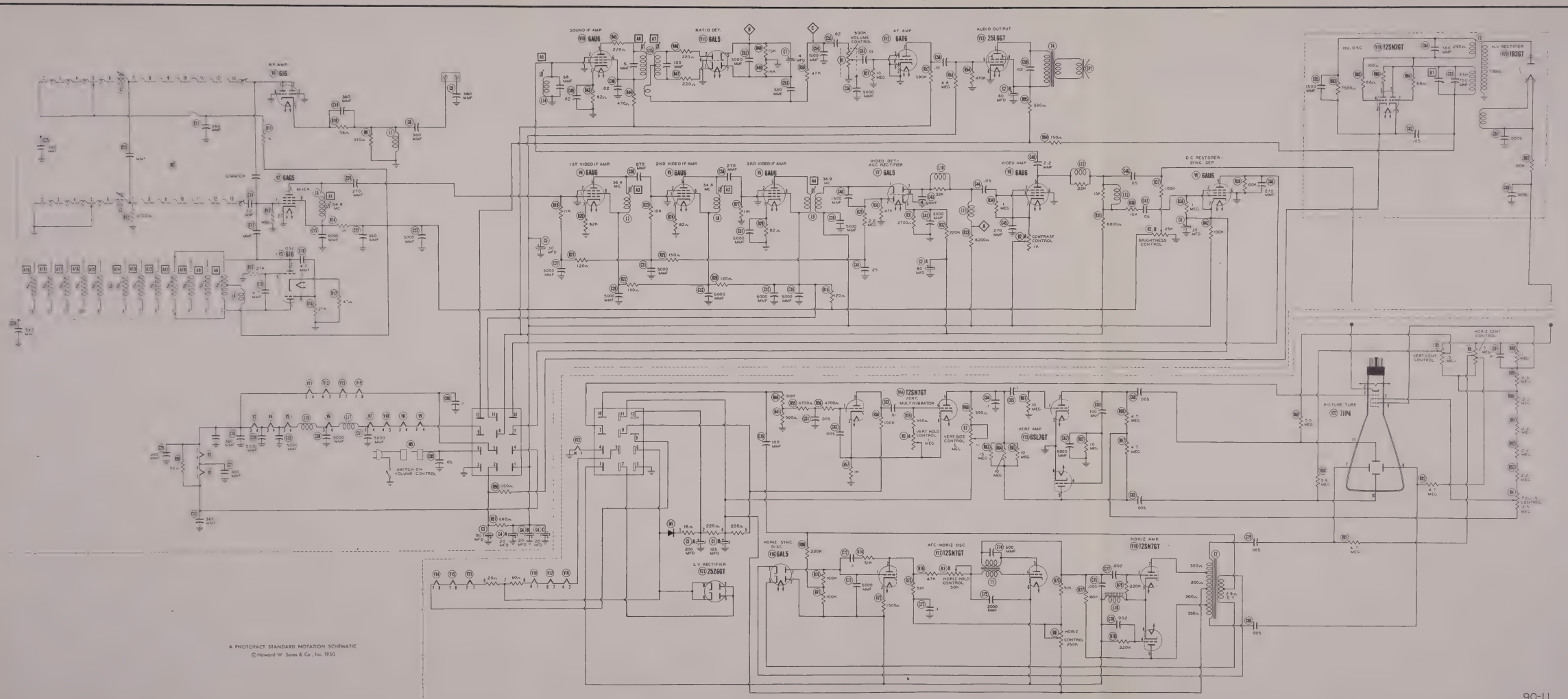
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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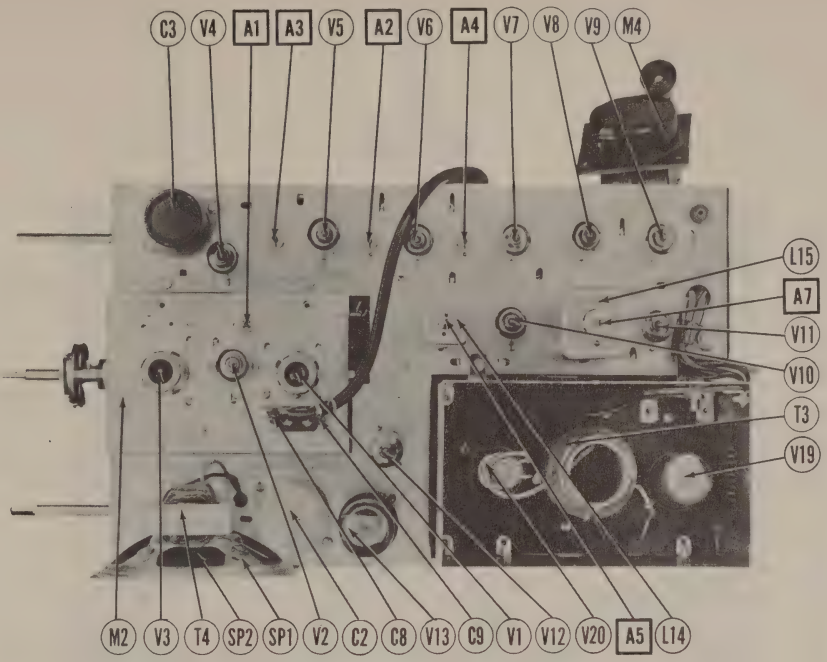
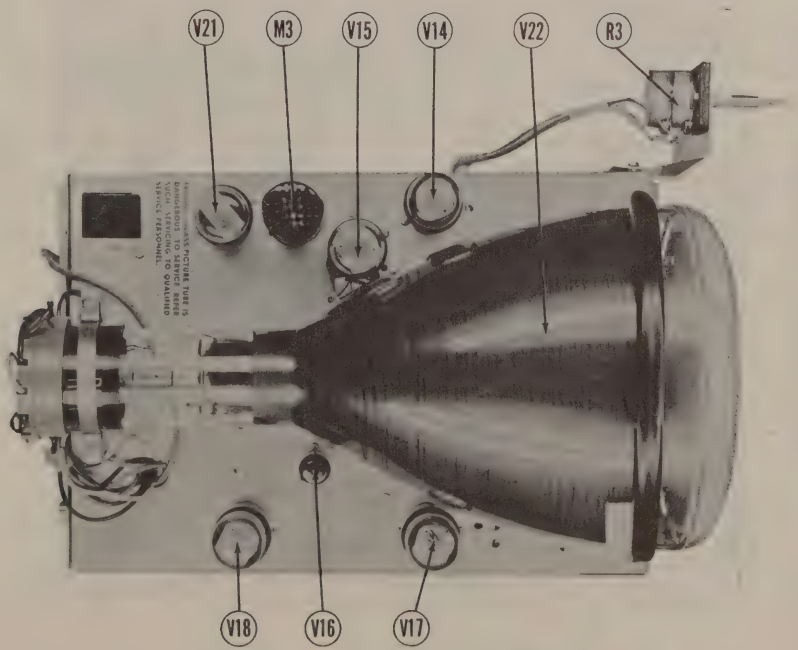
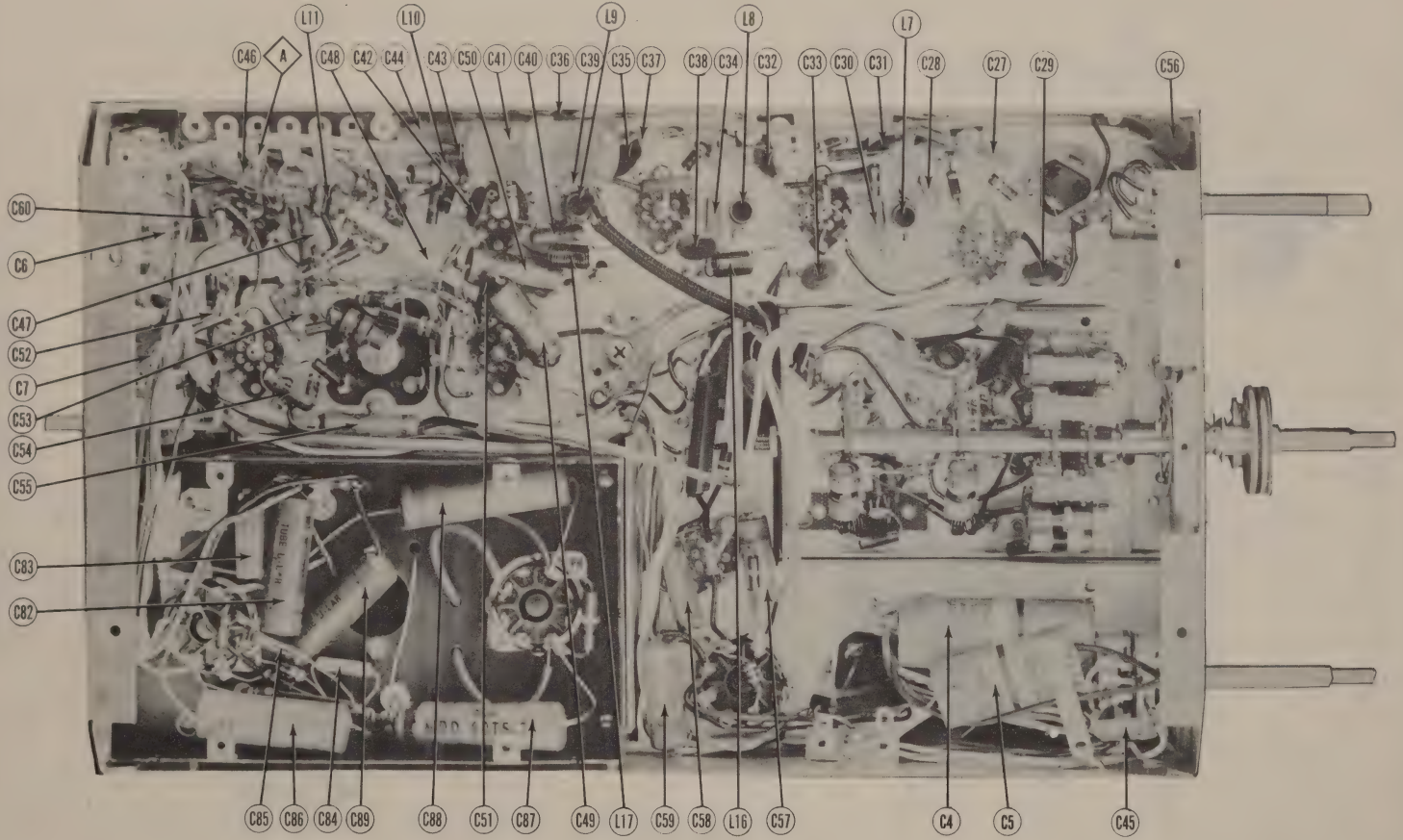
SWITCH ON VOLUME CONTROL
PICTURE TUBE V22 7JP4
BRIGHTNESS CONTROL
CONTRAST CONTROL 1K
HORIZ HOLD CONTROL 50K
HORIZ CONTROL 250K
VERT HOLD CONTROL
VERT SIZE CONTROL
HORIZ CENT CONTROL
VERT CENT CONTROL
FOC. CONTROL



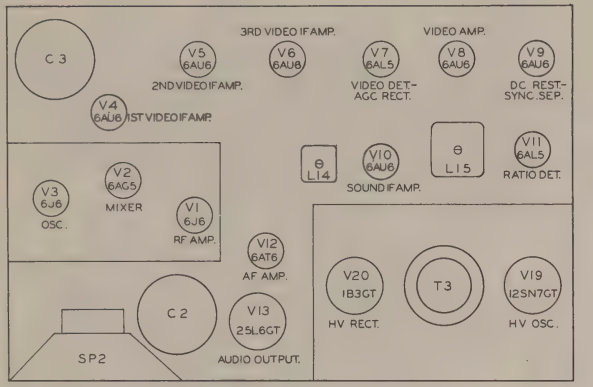
RF-IF CHASSIS-TOP VIEW



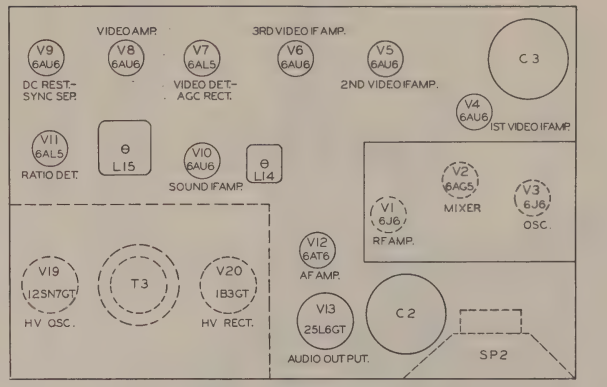
SWEEP CHASSIS-TOP VIEW



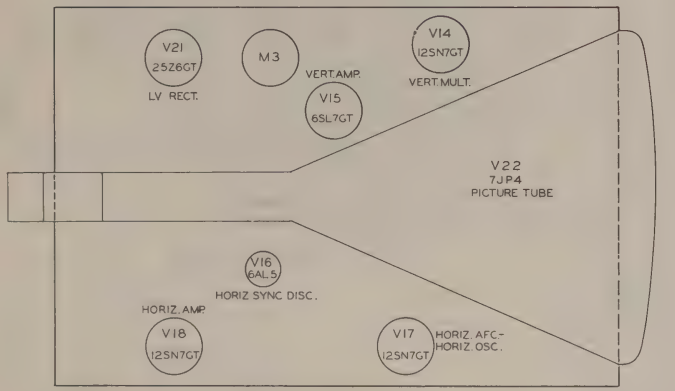
RF-IF CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

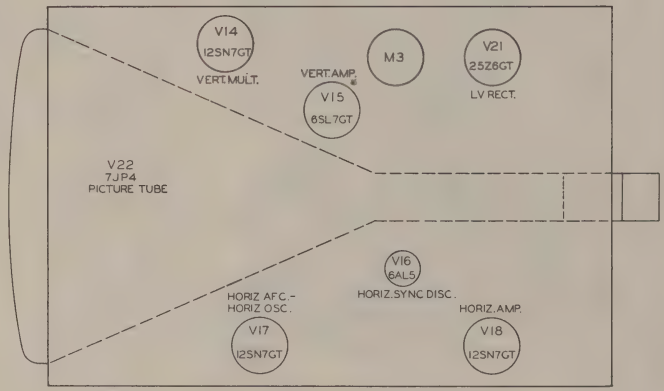


TOP VIEW



BOTTOM VIEW





TUBE PLACEMENT CHART

TELE-TONE
MODEL TV-208

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the picture tube is removed during alignment, short pins 1 and 14 of the picture tube socket to complete the filament circuit. Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	34.8MC (Unmod.)	Any	DC Probe and common leads across R33.	A1, A2	Adjust for maximum deflection.
2.	Direct	"	36.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. Set the channel switch to any channel where interference from the local oscillator is minimum. To check for erroneous indications turn the fine tuning control; if the pattern on the scope changes, switch to another channel.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	35MC (10MC SWP)	32.6MC 34.8MC 36.9MC 37.3MC	See note above	Vert. Amp. to Point (A) Low side to chassis.		Check for response curve similar to Fig 1 with proper marker placement. If necessary retouch A1 and A2 to correct the low frequency end, and A3 and A4 to correct the high frequency end of the response curve.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V8). Low side to chassis.	4.5MC (Unmod.)	Any channel unused locally.	DC Probe to Point (B) Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	.01MFD	"	"	"	DC Probe to Point C. Common to chassis.	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 450KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V8). Low side to chassis.	4.5MC (1MC SWP)	4.5MC	Any channel unused locally.	Vert. Amp. to Point (B) Low side to chassis.	A5, A6	Adjust for maximum amplitude and symmetry as per Fig 2.
5.	.01MFD	"	"	"	"	Vert. Amp. to Point (C) Low side to chassis.	A7	Adjust A7 so 4.5MC occurs at center of crossover lines as per Fig 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

The RF and mixer circuits in this tuner are pre-set at the factory and are very stable and normally should not require adjustment in the field. Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to center conductor of antenna input cable. Low side to outer shield.	57MC (10MC SWP)	55.25MC 59.75MC	2	Vert. Amp. to Point (A) Low side to chassis.	A8	Adjust to place sound marker as shown in Fig 4. The video marker should fall between 45 and 60% on opposite side of response curve. If the video marker does not fall within the proper range on ALL channels, switch to channel 6 and make slight adjustments of video IF coils A1, A2, A3 and A4 to obtain proper results.
			63MC (10MC SWP)	61.25MC 65.75MC	3		A9	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A10	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A11	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A12	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A13	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A14	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A15	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A16	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A17	
			207MC (10MC SWP)	205.25MC 209.75MC	12		A18	
			213MC (10MC SWP)	211.25MC 215.75MC	13		A19	

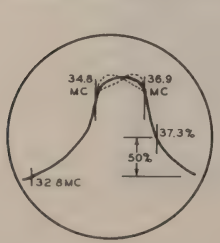


FIG. 1

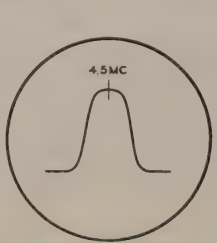


FIG. 2

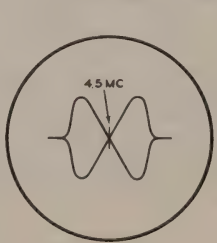


FIG. 3

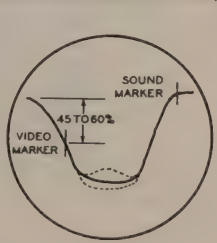
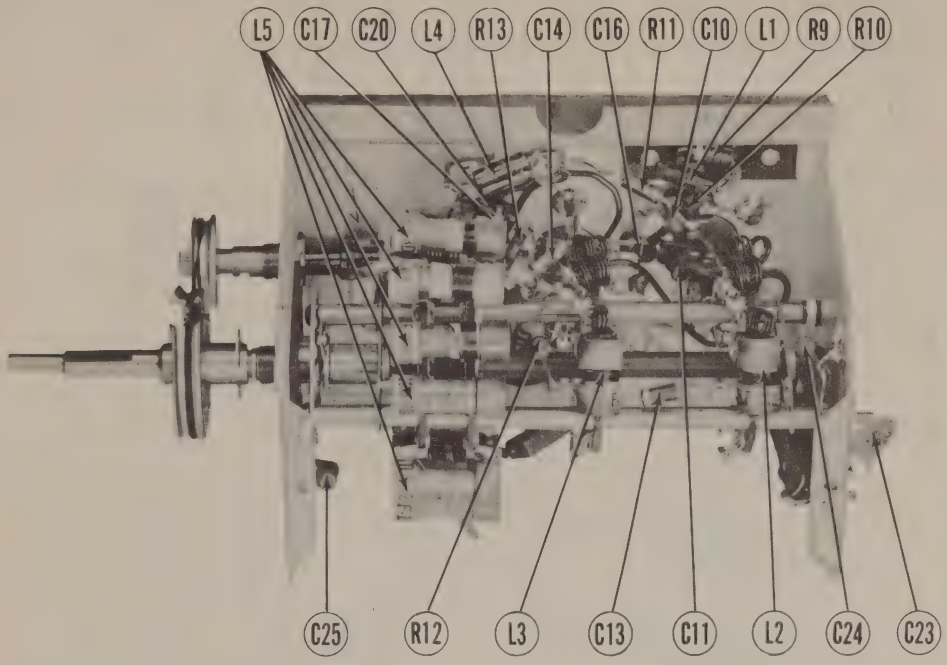
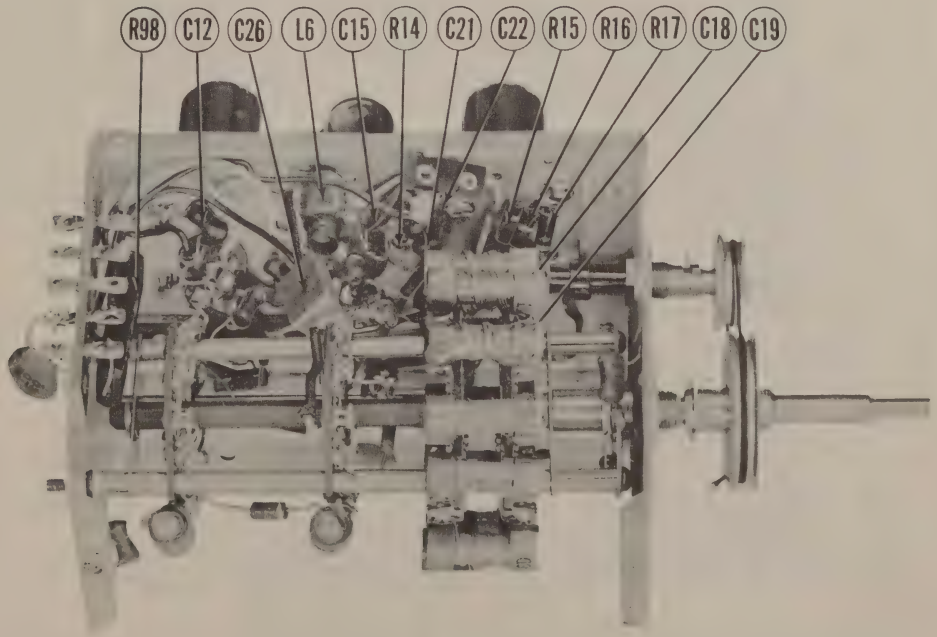


FIG. 4



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	75VDC	75VDC	6.3VAC	13VAC	0V.	0V.	.7VDC		
V 2	6AG▮	-1VDC	0V.	20VAC	26VAC	80VDC	80VDC	0V.		
V 3	▮J▮	85VDC	85VDC	20VAC	13VAC	§-2.3VDC	§-2VDC	.4VDC		
V 4	6AU▮	-1.1VDC	0V.	26VAC	32VAC	100VDC	100VDC	.5VDC		
V 5	6AU6	-.3VDC	0V.	32VAC	38VAC	100VDC	100VDC	.5VDC		
V 6	6AU6	0V.	0V.	38VAC	44VAC	102VDC	102VDC	.7VDC		
V 7	6AL5	-105VDC	-.8VDC	44VAC	50VAC	1.7VDC	0V.	-105VDC		
V 8	6AU6	#.5VDC	#7.4VDC	56VAC	62VAC	165VDC	#105VDC	#7.4VDC		
V 9	6AU6	#13VDC	#65VDC	62VAC	70VAC	#75VDC	#105VDC	#70VDC		
V 10	6AU6	0V.	0V.	56VAC	50VAC	95VDC	95VDC	.6VDC		
V 11	6AL5	0V.	0V.	20VAC	26VAC	.3VDC	0V.	-.3VDC		
V 12	▮AT▮	-.1VDC	0V.	32VAC	26VAC	0V.	0V.	48VDC		
V 13	25L6GT	0V.	32VAC	100VDC	105VDC	-7VDC	0V.	55VAC	0V.	
V 14	12SN7GT	-.3VDC	28VDC	.9VDC	-.1VDC	8VDC 43VDC	.9VDC	70VAC	82VAC	
V 15	6SL7GT	-.7VDC	90VDC	0V.	-.4VDC	95VDC	0V.	82VAC	88VAC	
V 16	6AL5	-100VDC	-105VDC	68VAC	75VAC	-100VDC	0V.	-105VDC		
V 17	12SN7GT	#-.2VDC	#11VDC #65VDC	#1.6VDC	#-11VDC	#35VDC #70VDC	#0V.	75VAC	86VAC	
V 18	12SN7GT	#-2.4VDC	#200VDC	#1VDC	#-3.2VDC	#200VDC	#1VDC	86VAC	99VAC	
V 19	12SN7GT	¶-55VDC	¶260VDC	¶6.5VDC	-55VDC	¶260VDC	¶6.5VDC	68VAC	55VAC	
V 20	1B3GT	* DO NOT MEASURE								
V 21	25Z6GT	0V.	87VAC	-135VDC	117VAC	-135VDC	0V.	112VAC	117VAC	

V 22	7JP4	PIN 1	PIN 2	PIN 3	PIN 5	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 14
		6.3VAC	90VDC	#70VDC	*	*	*	*	*	*	0V.

§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
# MEASURED FROM PIN 6 OF V17.
¶ MEASURED FROM PIN 5 OF V21.

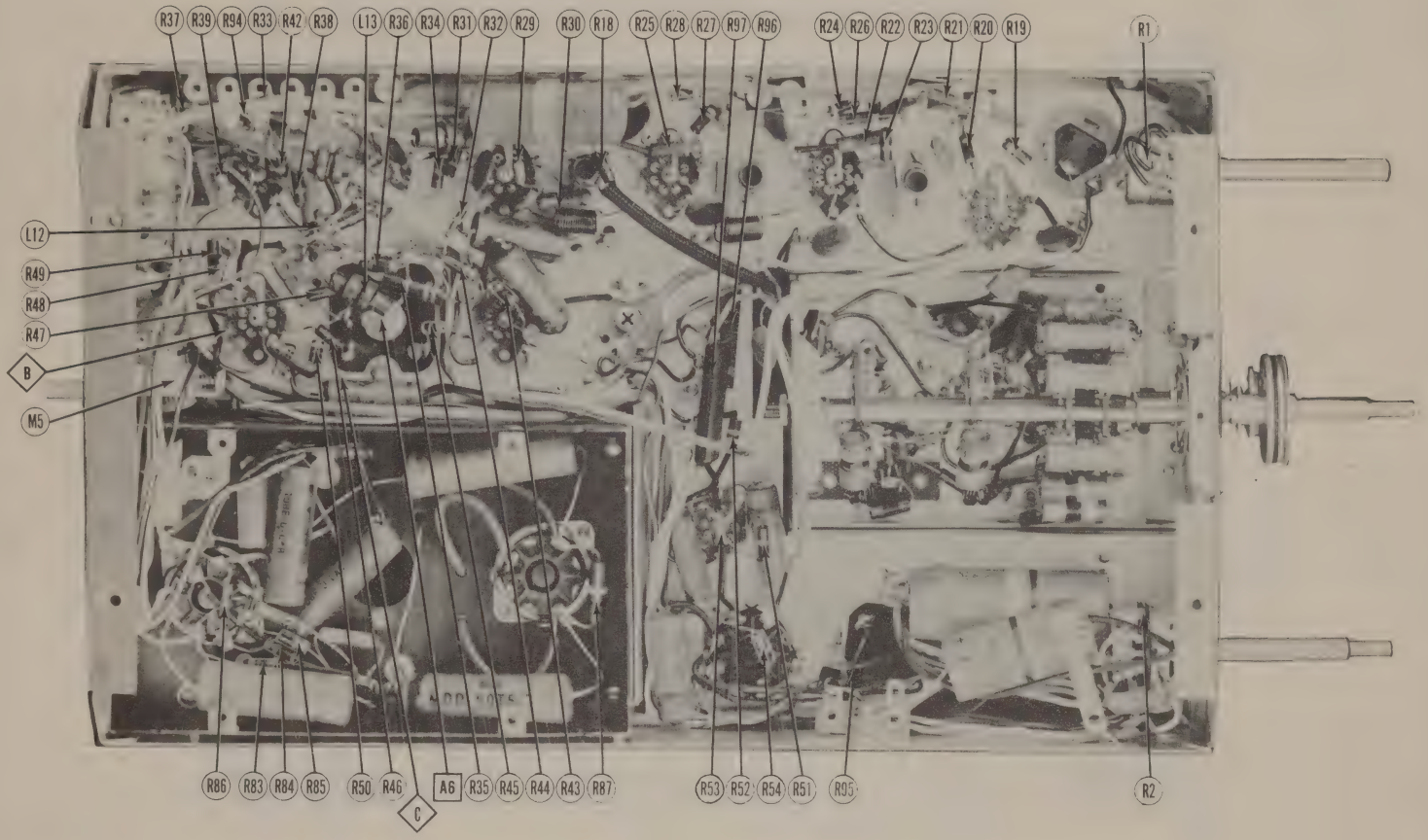
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†1.3KΩ	†1.3KΩ	1.5Ω	4Ω	0Ω	0Ω	56Ω		
V 2	6AG5	1 Meg.	0Ω	7Ω	10Ω	†1.3KΩ	†1.3KΩ	0Ω		
V 3	6J6	†390Ω	†390Ω	7Ω	4Ω	27KΩ	27KΩ	47Ω		
V 4	6AU6	2.2 Meg.	0Ω	10Ω	13Ω	†530Ω	†530Ω	82Ω		
V 5	6AU6	2.2 Meg.	0Ω	13Ω	17Ω	†390Ω	†390Ω	82Ω		
V 6	6AU6	11KΩ	0Ω	17Ω	21Ω	†240Ω	†240Ω	82Ω		
V 7	6AL5	#0Ω	47KΩ	21Ω	24Ω	2.7KΩ	0Ω	#8.2KΩ		
V 8	6AU6	#1 Meg.	#1000Ω	27Ω	30Ω	†7.2KΩ	0Ω	#1000Ω		
V 9	6AU6	#1 Meg.	#100KΩ	30Ω	34Ω	100KΩ	0Ω	#100KΩ		
V 10	6AU6	1.5Ω	0Ω	29Ω	24Ω	†1.1KΩ	†900Ω	82Ω		
V 11	6AL5	Inf.	Inf.	7Ω	10Ω	15KΩ	0Ω	15KΩ		
V 12	6AT6	10 Meg.	0Ω	15Ω	10Ω	0Ω	0Ω	†390KΩ		
V 13	25L6GT	0Ω	15Ω	†480Ω	†330Ω	470KΩ	11Ω	28Ω	0Ω	
V 14	12SN7GT	10KΩ	†100KΩ	1000Ω	1.5 Meg.	†5 Meg. †400KΩ	1000Ω	34Ω	39Ω	
V 15	6SL7GT	10 Meg.	♦20 Meg.	0Ω	10 Meg.	♦20 Meg.	0Ω	39Ω	41Ω	
V 16	6AL5	#320KΩ	#0Ω	34Ω	36Ω	#320KΩ	Inf.	#200KΩ		
V 17	12SN7GT	#200KΩ	†170KΩ †50KΩ	#1.5KΩ	†200KΩ †100KΩ	†110KΩ †40KΩ	#0Ω	36Ω	42Ω	
V 18	12SN7GT	#220KΩ	†415Ω	#34Ω	#220KΩ	†415Ω	#34Ω	42Ω	46Ω	
V 19	12SN7GT	¶7.5KΩ	†170Ω	¶150Ω	¶7.5KΩ	†270Ω	¶150Ω	34Ω	28Ω	
V 20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP 850Ω
V 21	25Z6GT	Inf.	41Ω	700KΩ	52Ω	700KΩ	Inf.	48Ω	52Ω	

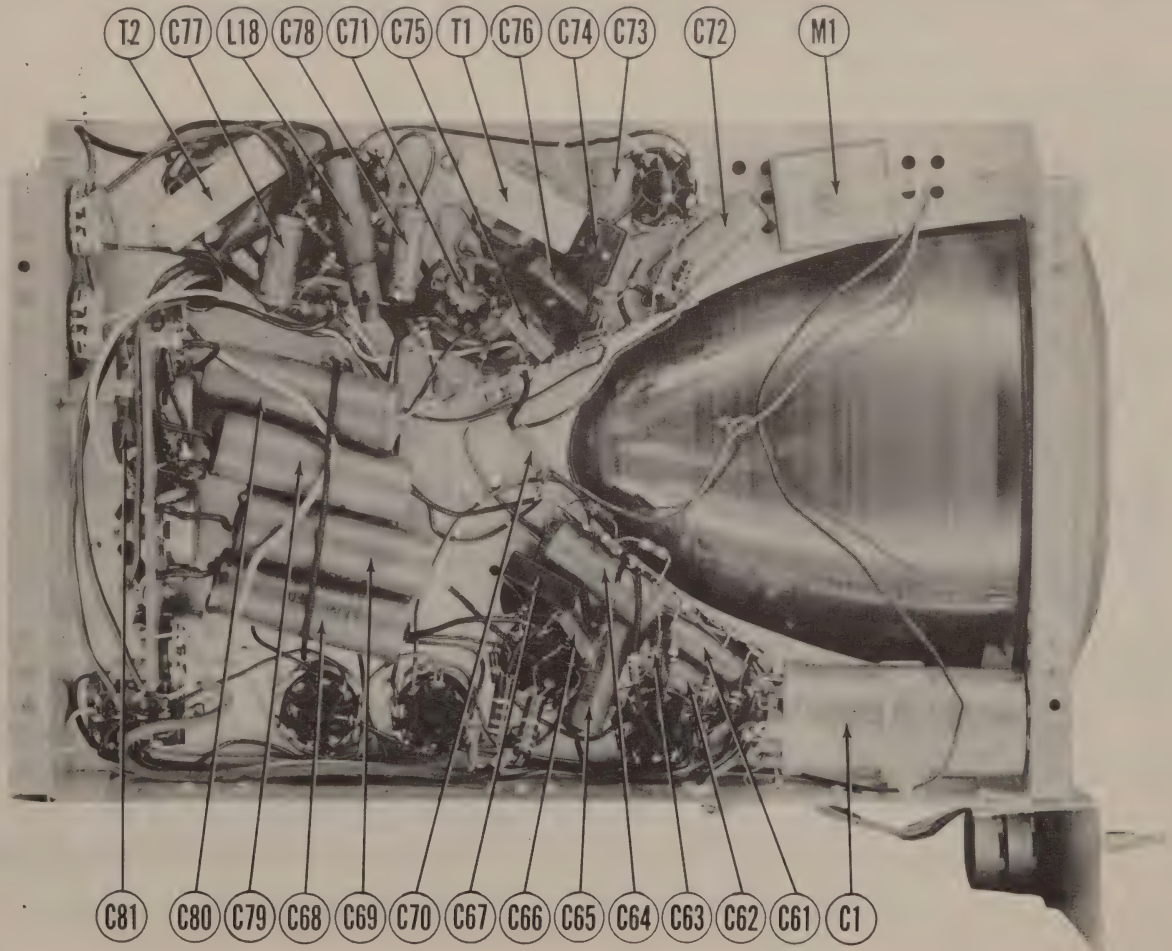
V 22	7JP4	PIN 1	PIN 2	PIN 3	PIN 5	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 14
		1.5Ω	100KΩ	¶100KΩ	♦13Meg. ♦11Meg.	♦6Meg.	♦6Meg.	♦1Meg.	♦6.5Meg. ♦5.6Meg.	♦6Meg.	0Ω

† MEASURED FROM JUNCTION OF M1 AND 18Ω BALLAST TUBE SECTION.
♦ MEASURED FROM PIN 7 OF V20.
MEASURED FROM PIN 6 OF V17.
¶ MEASURED FROM PIN 5 OF V21.

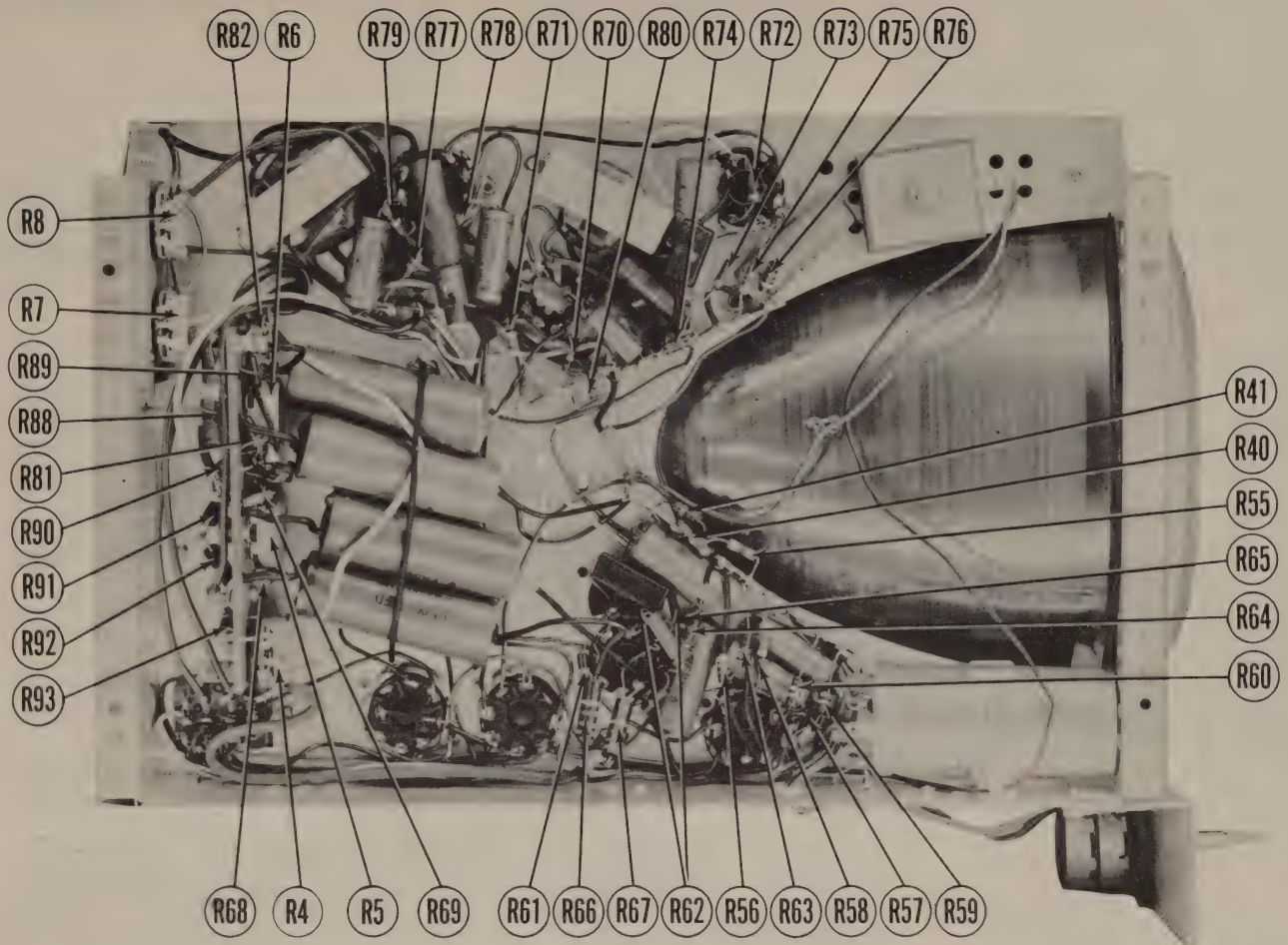
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF-IF CHASSIS-BOTTOM VIEW- RESISTOR IDENTIFICATON



SWEEP CHASSIS - BOTTOM VIEW - CAPACITOR IDENTIFICATION



SWEEP CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6J6	6J6	7BF	
V2	Mixer	6A5	6A5	7BD	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AU6	6AU6	7BK	
V5	2nd Video IF	6AU6	6AU6	7BK	
V6	3rd Video IF	6AU6	6AU6	7BK	
V7	Video Det.-AGC Rectifier	6AL5	6AL5	6BT	
V8	Video Amp	6AU6	6AU6	7BK	
V9	DC Rest.-Sync Sep	6AU6	6AU6	7BK	
V10	Sound IF Amp	6AU6	6AU6	7BT	
V11	Ratio Det	6AL5	6AL5	6BT	
V12	AF Amp	6AT6	6AT6	7BT	
V13	Audio Output	25L6GT	25L6GT	7AC	
V14	Vert. Multivib	12SN7GT	12SN7GT	8BD	
V15	Vert. Amp	6SL7GT	6SL7GT	8BD	
V16	Hor. Sync. Disc	6AL5	6AL5	6BT	
V17	Hor. AFC-Hor. Oscillator	12SN7GT	12SN7GT	8BD	
V18	Hor. Amp	12SN7GT	12SN7GT	8BD	
V19	HV Osc.	12SN7GT	12SN7GT	8BD	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	25Z6GT	25Z6GT	7Q	
V22	Picture Tube	23P4	23P4	14G	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	TELE-TONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	200	150	TCE100D	AF4025D	UP1JBJ			▲ Filter
B	.25	150			.1055			▲ Filter
C2A	80	150	TCE128D	AF1616D	UP4443151		TVL-14	▲ Filter
B	80	150						▲ Filter
C3	80	150	TCE127D	AF30D	UP8015		TVL-1	Filter
C4A	20	150		PRSA444D	EDL22216		TA-302	Filter-Red
B	20	150						Filter-Blue
C	20	150						Filter-Green
C5	30	300	TCE103D	PRS250/40	BR2035A		UT-402	Filter
C6	30	300	TCE103D	PRS250/40	BR2035A		UT-402	DC Res. Cathode Bypass
C7	4	25	TCE104D	PRS150/4	BR550		TVA-13	Stabilizing Cap.
C8	.360		TCC361-10	GP360M		GP2K-390		Ant. Coupling
C9	.360		TCC361-10	GP360M		GP2K-390		Ant. Isolation
C10	.360		TCC361-10	GP360M		GP2K-390		RF Cathode Bypass
C11	.360		TCC361-10	GP360M		GP2K-390		RF Plate Decoupling
C12	.360		TCC361-10	GP360M		GP2K-390		RF Filament Bypass
C13			TCC010-11					RF Coupling
C14	22		TCC22-12	GP22K		GP1K-22		RF Coupling
C15	5000		TCC5025P	BPD-5		811-005	29C1	Mixer Decoupling
C16	.360		TCC361-10	GP360M		GP2K-390		Mixer Filament Bypass
C17			TCC010-11					Osc. Coupling
C18	4.7		TCC4.7-11	CN4. 7DNPO		NPOK-4.7		Osc. Feedback
C19	4.7		TCC4.7-11	CN4. 7DNPO		NPOK-4.7		Osc. Feedback
C20	.360		TCC361-10	GP360M		GP2K-390		Osc. Filament Bypass
C21	.360		TCC361-10	GP360M		GP2K-390		Osc. Filament Bypass
C22	.360		TCC361-10	GP360M		GP2K-390		Decoupling
C23	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	Decoupling
C24	.360		TCC361-10	GP360M	5W5T4	GP2K-390	1FM-335	Switch Bypass
C25	.360		TCC361-10	GP360M	5W5T4	GP2K-390	1FM-335	Switch Bypass
C26	270	1000	TCM271-13	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C27	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	AGC Filter
C28	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	1st V. IF Decoupling
C29	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	1st V. IF Fil. Bypass
C30	270	1000	TCM271-13	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C31	.5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	AGC Filter
C32	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	2nd V. IF Decoupling
C33	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	2nd V. IF Fil. Bypass
C34	270	1000	TCM271-13	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C35	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	RF Bypass
C36	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	RF Bypass
C37	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	3rd V. IF Cathode Bypass
C38	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	3rd V. IF Fil. Bypass
C39	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	RF Bypass
C40	1500		TCC152-10		1W5D15	GP2L-0015	1FM-215	IF Coupling
C41	.25	400	TCP254-1	P488-25	GT4P25		TC-2	AGC Filter
C42	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	DAGC Decoupling
C43	5		TCC5-11	CN5CNPO	5W5Y5	NPOK-5	MS-55	V. Diode Filter
C44	.05	400	TCP503-4	P488-05	PTE455		TM-15	Video Coupling
C45	270	1000		1468-00025	5W5T25	GP2K-270	1FM-325	V. Amp. Cathode Bypass
C46	.05	400	TCP503-4	P488-05	PTE455		TM-15	Video Coupling
C47	.05	400	TCP503-4	P488-05	PTE455		TM-15	Video Coupling
C48	2.2		TCC2.2-11					S. IF Coupling
C49	.02	400	TCP203-4	P488-02	PTE452		TM-12	S. IF Cathode Bypass
C50	.02	400	TCP203-4	P488-02	PTE452		TM-12	S. IF Decoupling
C51	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	V. Det. Filament Bypass
C52	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	RF Bypass
C53	330	500	TCM331-5	1468-00035	5W5T3	GP2K-330	1FM-335	Diode Load Cap.
C54	1500		TCC152-10	GP1500M	1W5D15	GP2L-0015	1FM-215	De-emphasis
C55	.02	400	TCP203-4	P488-02	PTE452		TM-12	Audio Coupling
C56	5000		TCC5025P	BPD-5	1D5D5	811-005	29C1	Vol. Cont. Isolation
C57	.01	800	TCP103-10	P488-01	PTE451	831-01	TM-11	Audio Coupling
C58	.01	400	TCP103-10	P488-01	PTE451	831-01	TM-11	Audio Coupling
C59	.02	400	TCP203-4	P488-02	PTE452		TM-12	Output Plate Bypass

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	TELE-TONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C60	270	500	TCM271-13	1468-00025	5W5T25	GP2K-270	1FM-325	Sync. Sep. Plate Bypass
C61	.005	600	TCC502-10	P688-005	PTE6D5	811-005	TM-25	Integrator Net.
C62	.005	600	TCP502-10	P688-005	PTE6D5	811-005	TM-25	Integrator Net.
C63	.01	400	TCP103-10	P488-01	PTE451	821-01	TM-11	Vert. M. V. Feedback
C64		400	TCP104-4	P488-1	PTE4P1		TM-1	Vert. Discharge
C65	1	400	TCP104-4	P488-1	PTE4P1		TM-1	Vert. Sweep Coupling
C66	100	1000	TCM101-14					Vert. Sweep Coupling
C67	5000	500	TCM503-8	1467-505	1D5D5	811-005	1FM-25	Voltage Divider
C68	.005	6000	TCP502-6K	6089M-005	PTE6D5		TVM-256	Vert. Sweep Coupling
C69	.005	6000	TCP502-6K	6089M-005	PTE6D5		TVM-256	Vert. Sweep Coupling
C70	100	1000	TCM101-14	1468-0001	5W5T1		1FM-31	Hor. Sync. Coupling
C71	5000		TCC5025S	BPD-5	1D5D5	811-005	29C1	AFC Filter
C72	.1	400	TCP104-4	P488-1	PTE4P1		TM-1	AFC Feedback
C73	1	400	TCP104-4	P488-1	PTE4P1		TM-1	Decoupling
C74	500	500		1469-0005	5R5T5		MS-35	Fixed Trimmer
C75	2000	500	TCP202-10	1467-002	1W5D2	GP2M-002	1FM-22	Hor. Osc. Grid Cap.
C76	.005	600	TCP502-10	P688-005	PTE6D5	811-005	TM-25	Hor. Discharge
C77	.002	600	TCP202-10	P688-002	PTE6D2	GP2M-002	TM-22	Hor. Sweep Coupling
C78	.002	600	TCP202-10	P688-002	PTE6D2	GP2M-002	TM-22	Hor. Sweep Coupling
C79	.005	6000	TCP502-6K	6089M-005	PTE6D5		TVM-256	Hor. Sweep Coupling
C80	.005	6000	TCP502-6K	6089M-005	PTE6D5		TVM-256	Hor. Sweep Coupling
C81	.01	600	TCP103-10	P688-01	PTE6S1	821-01	TM-11	Cent. Cont. Bypass
C82	.05	600	TCP503-10	P688-05	PTE6S5		TM-15	HV Osc.Plate Decoupling
C83	750	500	TCM751-8	1464-750	3R5T7			Fixed Trimmer
C84	360	500	TCM361-6	1469-00035				Fixed Trimmer
C85	1500		TCC152-10	GP1500M	1W5D15	GP2L-0015	1FM-215	HV Osc. Grid Cap.
C86	.1	600	TCP104-4	P688-1	PTE6P1		TM-1	HV Osc. Fil. Bypass
C87	.0005	6000	TCP501-6K		PTE60T5		TVM-356	HV Filter
C88	.0005	6000	TCP501-6K		PTE60T5		TVM-356	HV Filter
C89	.05	600	TCP503-10	P688-05	PTE6S5		TM-15	Line Filter

† Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	TVC-100D	QI3-133	M-60-Z	Volume control
B	Switch		Not Req.	TS-1	SW-A	Attach to R1A per instructions
R2A	1000Ω	½		Bil-108 *		Contrast control, panel
B	25KΩ	½	TVC-101D	Bil-120 *	TVC-101D	Brightness control, rear
C	Shaft End			E187 *		Attach per instructions in "Concentrikit".
R3A	1 Meg.	½		Bil-137 *		Vert. hold control, panel
B	50KΩ	½	TVC-512D	Bil-123 *	TVC-512D	Horiz. hold control, rear
C	Shaft End			E187 *		Attach per instructions in "Concentrikit".
R4A	2.5 Meg.	½	TVC-513D	QII-239		Focus control
B	Shaft		Not Req.	TQ		Attach to R4A per instructions
R5	5 Meg.	½	TVC-514D			Vert. centering control, tapped at 2.5 Meg.
R6	5 Meg.	½	TVC-514D			Horiz. centering control, tapped at 2.5 Meg.
R7A	5 Meg.	½	TVC-103D	QII-141	AM-85-S	Vert. size control
B	Shaft		Not Req.	RQ	KSS-3 #	Attach to R7A per instructions
R8A	250KΩ	½	TVC-116D	QII-130	AM-55-S	Horiz. size control
B	Shaft		Not Req.	RQ	KSS-3 #	Attach to R8A per instructions

* Additional parts to be used with "Concentrikit".
# File slot in shaft to duplicate original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R9	330Ω 10%	½			RF Cathode
R10	560Ω 10%	½			Parasitic Suppressor
R11	1000Ω	½		BTS-1000	RF Plate Decoupling
R12	4700Ω	½		BTS-4700	Mixer Coil Shunt
R13	1 Meg. 5%	½		BTS-1 Meg. -5%	Mixer Grid
R14	1000Ω	½		BTS-1000	Mixer Decoupling
R15	27KΩ	½			Osc. Grid
R16	27KΩ	½			Osc. Grid
R17	47Ω	½			Osc. Cathode
R18	1200Ω	½			Decoupling
R19	11KΩ 5%	½			1st Video IF Grid
R20	82Ω 10%	½			1st Video IF Cathode
R21	1200Ω	½			AGC Network
R22	150Ω	½		BW-½-150	Decoupling-Wire Wound
R23	10KΩ	½			2nd Video IF Grid
R24	82Ω 10%	½			2nd Video IF Cathode
R25	150Ω	½		BW-½-150	Decoupling-Wire Wound
R26	330Ω	½			AGC Network
R27	11KΩ 5%	½			3rd Video IF Grid
R28	82Ω 10%	½			3rd Video IF Cathode
R29	2.2 Meg.	½		BTS-2.2 Meg.	AGC Network
R30	47KΩ	½		BTS-47K	AGC Rect. Diode Load
R31	2700Ω	½		BTS-2700	AGC Rect. Diode Load
R32	220KΩ	½		BTS-220K	Voltage Divider
R33	82000Ω 5%	½		BTS-8200-5%	Video Det. Diode Load
R34	1 Meg.	½		BTS-1 Meg.	Video Amp. Grid
R35	6800Ω 5%	½		BTA-6800-5%	Video Amp. Plate
R36	10KΩ 5%	½		BTS-10K-5%	Isolation
R37	100KΩ	½		BTS-100K	Voltage Divider
R38	1 Meg.	½		BTS-1 Meg.	Sync. Sep. Grid
R39	100KΩ	½		BTS-100K	Sync. Sep. Plate Load
R40	100KΩ	½		BTS-100K	Voltage Divider
R41	560Ω	½		BTS-560	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES
R42	100KΩ	½		BTS-100K	Picture Tube Grid
R43	82Ω 10%	½			Sound IF Cathode
R44	47Ω	½		BTS-470	Sound IF Decoupling
R45	220Ω	½			Parasitic Supp.
R46	220Ω	½			Balancing
R47	220Ω	½			Balancing
R48	15KΩ 5%	½		BTS-15K-5%	Ratio Det. Diode Load
R49	15KΩ 5%	½		BTS-15K-5%	Ratio Det. Diode Load
R50	47KΩ 10%	½		BTS-47K	De-emphasis
R51	10 Meg.	½		BTS-10 Meg.	AF Grid
R52	390KΩ	½		BTS-390K	AF Plate
R53	6.8 Meg.	½		BTS-6.8 Meg.	Bias Network
R54	470KΩ	½		BTS-470K	Output Grid
R55	4700Ω	½		BTS-4700	Integrator
R56	4700Ω	½		BTS-4700	Integrator
R57	1000Ω	½		BTS-1000	Vert. MV Cathode
R58	100KΩ	½		BTS-100K	Vert. MV Plate
R59	390KΩ	½		BTS-390K	Vert. MV Grid
R60	390KΩ	½		BTS-390K	Vert. MV Plate
R61	10 Meg.	½		BTS-10 Meg.	Vert. Amp. Grid
R62	10 Meg.	½		BTS-10 Meg.	Vert. Amp. Grid
R63	15 Meg.	½		BTS-15 Meg.	Voltage Divider
R64	10 Meg.	½		BTS-10 Meg.	Voltage Divider
R65	10 Meg.	½		BTS-10 Meg.	Voltage Divider
R66	4.7 Meg. 10%	1		BTA-4.7 Meg.	Vert. Amp. Plate
R67	4.7 Meg. 10%	1		BTA-4.7 Meg.	Vert. Amp. Plate
R68	5.6 Meg. 5%	1		BTS-5.6Meg.-5%	Vert. Deflection Load
R69	5.6 Meg. 5%	1		BTS-5.6Meg.-5%	Vert. Deflection Load
R70	100KΩ	½		BTS-100K	Horiz. Sync. Disc. Load
R71	100KΩ	½		BTS-100K	Horiz. Sync. Disc. Load
R72	15000 5%	1		BTS-1500-5%	Horiz. AFC Cathode
R73	51KΩ 5%	½			Horiz. AFC Plate
R74	51KΩ 5%	½			Horiz. AFC Filter Network
R75	51KΩ 5%	½			Decoupling
R76	47KΩ 10%	½		BTS-47K	Horiz. Osc. Grid
R77	180KΩ 10%	½		BTS-180K	Horiz. Amp. Plate
R78	220KΩ	½		BTS-220K	Horiz. Amp. Grid
R79	220KΩ	½		BTS-220K	Horiz. Amp. Grid
R80	220KΩ	½		BTS-220K	Feedback
R81	4.7 Meg.	½		BTS-4.7 Meg.	Horiz. Deflection Load
R82	4.7 Meg.	½		BTS-4.7 Meg.	Horiz. Deflection Load
R83	75000 5%	2			HV Osc. Grid
R84	68Ω	1			Parasitic Supp.
R85	68Ω	1			Parasitic Supp.
R86	100Ω	1			Parasitic Supp.
R87	100KΩ	½			HV Filter
R88	1 Meg.	½		BTS-1 Meg.	Voltage Divider
R89	3.3 Meg.	½			Voltage Divider
R90	2.2 Meg. 10%	1			Voltage Divider
R91	2.2 Meg. 10%	1			Voltage Divider
R92	2.2 Meg. 10%	1			Voltage Divider
R93	2.2 Meg. 10%	1			Voltage Divider
R94	150Ω	1		BW-1-150	Filter-Wire Wound
R95	330Ω 10%	2		BW-2-330	Filter-Wire Wound
R96	150Ω	1		BW-1-150	Bias Network-Wire Wound
R97	680Ω 10%	2		BW-2-680	Bias Filter-Wire Wound
R98	86Ω 10%	2		BW-2-86	Filament Shunt-Wire Wound

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	TELE-TONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	PM	3.3Ω	TSP46B	ST-113 § MOD. P4-X	4A1 §	§ Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T1	7.5Ω	3.3Ω	TTR168-D	A-8110	A-3002		Hor. Block Osc. Trans.
T2	1000 tap. ② 350Ω and 750Ω	2.8Ω CT	TTR165-D				Hor. Deflection Trans.

TELE-TONE MODEL TV-208

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (H.V. OSC.)

ITEM No.	RATING				REPLACEMENT DATA			
					TELE-TONE	STANCOR	MERIT	CHICAGO
	PRI.	SEC. 1	SEC. 2	SEC. 3	PART No.	PART No.	PART No.	PART No.
T3	1.1Ω	750Ω	250Ω	0Ω	TLF-137-D			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELE-TONE	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T4	2.6KΩ	3.3Ω	250Ω	.6Ω	Part of TSP46B	A-3876 §	A-2928 §	RO-2 §	§ Bend mounting tabs down and mount on original bracket.

COILS (RF-IF)

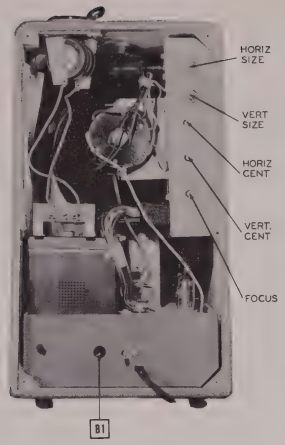
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
				TELE-TONE	MEISSNER	
		PRI.	SEC.	PART No.	PART No.	
L1	Ant. Input	.2Ω				
L2	RF End Inductor	0Ω		TLF143-D		
L3	RF End Inductor	0Ω		TLF143-D		
L4	RF Plate Chk.	0Ω				
L5A	Osc. Coil	0Ω		TLF120-1D		
B	Osc. Coil	0Ω		TLF120-2D		
C	Osc. Coil	0Ω		TLF120-3D		
D	Osc. Coil	0Ω		TLF120-4D		
E	Osc. Coil	0Ω		TLF120-5D		
F	Osc. Coil	0Ω		TLF120-6D		
G	Osc. Coil	0Ω		TLF120-7D		
H	Osc. Coil	0Ω		TLF120-8D		
I	Osc. Coil	0Ω		TLF120-9D		
J	Osc. Coil	0Ω		TLF120-10D		
K	Osc. Coil	0Ω		TLF120-10D		
L	Osc. Coil	0Ω		TLF120-10D		
L6	1st Video IF	.1Ω				
L7	2nd Video IF	.1Ω				
L8	3rd Video IF	.1Ω				
L9	4th Video IF	.1Ω				
L10	Peaking	6Ω				Wound on 33KΩ resistor.
L11	Peaking	9Ω				
L12	Peaking	8.5Ω				Wound on 22KΩ resistor.
L13	Peaking	10Ω				Wound on 15KΩ resistor.
L14	Sound IF	1.5Ω				
L15	Ratio Det. Trans.	4Ω	.8Ω			
L16	Fil. Choke	.1Ω				
L17	Fil. Choke	.1Ω				
L18	Cath. Choke	34Ω				Red identification dot.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	TELE-TONE PART No.	SYLVANIA PART No.		
M1	.160A	TSR100	NE-5		

MISCELLANEOUS

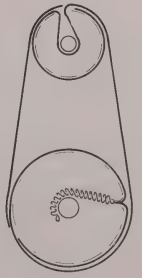
ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
M2	RF Tuner		
M3	Ballast Tube	TBR103D	
M4	Antenna		Indoor
M5	Switch		Interlock



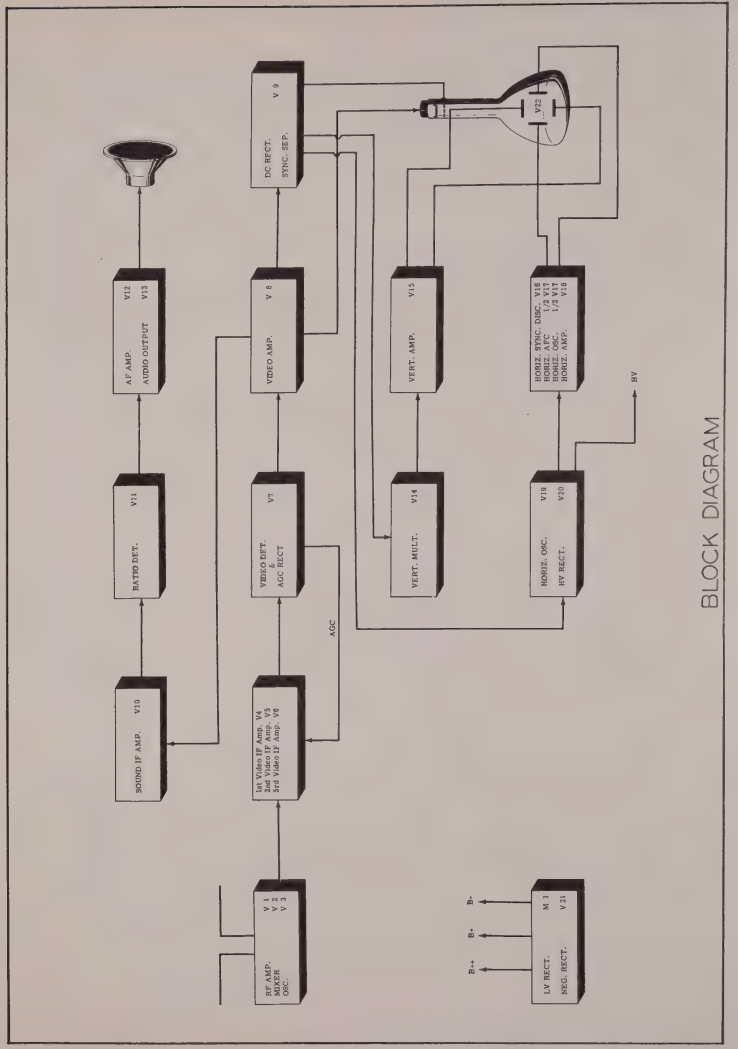
CABINET–REAR VIEW

HIGH VOLTAGE OSCILLATOR ADJUSTMENT

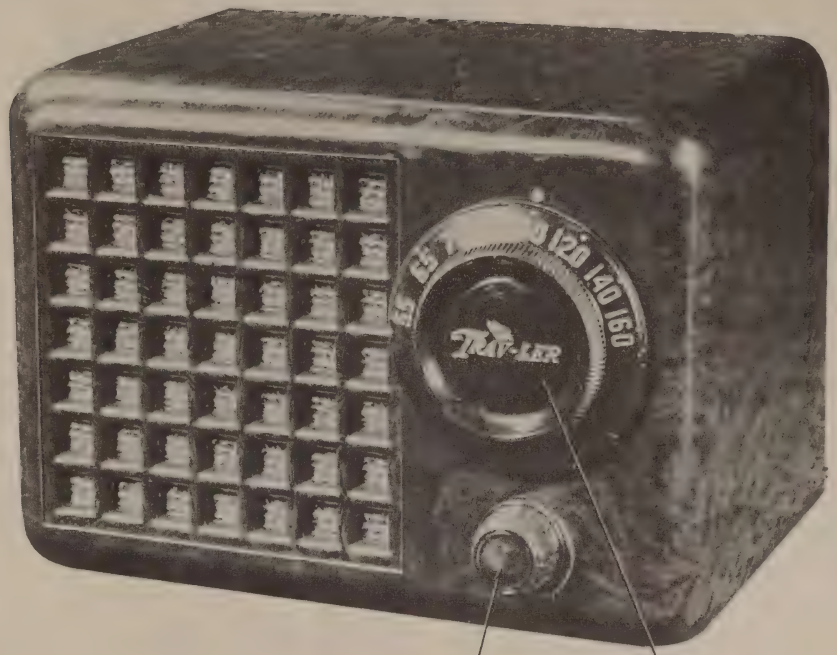
The picture size trimmer (B1) which controls the high voltage is located in the high voltage compartment and is used to adjust the picture to the proper horizontal width. Due to the interaction between circuits, it will be necessary to adjust the height control whenever B1 is changed.



FINE TUNING DIAL CORD STRINGING



TRAV-LER
MODEL 5056-A



TRAV-LER
MODEL 5056-A

TRAV-LER MODEL 5056-A

TRADE NAME	Trav-Ler, Model 5056-A
MANUFACTURER	Trav-Ler Radio and Television Corp., 571 W. Jackson, Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types 12SA7GT Converter, 12SQ7 DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-125 Volts AC-DC RATING .25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial scale, turn tuning gang fully closed and set dial scale so the last reference mark on the dial coincides with the reference mark on the cabinet.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.1MFD	"	1650KC	"	"	A3	"
3.	50MMF	High side to antenna terminal on antenna coil. (Remove hank antenna). Low side to B-.	1400KC	Tune for max. output	"	A4	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TRAV LER
MODEL 5056-A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12SA7GT	12SA7GT	8AD	
V2	DET.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
V3	Power Output	50L6GT	50L6GT	7AC	
V4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	EC-15	PRSA150/50-30	EDL5315		TA-530	Filter-Green
B	30	150						Filter-Red
C2	10	300		1468-00001	5W5Q1	GP1K-10	MS-41	RF Coupling
C3	50	500	MC-4	1468-00005	5W5Q5	GP1K-50	1FM-45	Osc. Grid Cap.
C4	.05	400	PC-5	P488-05	PTE4S5		72P51	Line Isolation
C5	.05	200	PC-2	P288-05	PTE4S5		TM-15	AVC Filter
C6	100	500	MC-2	1468-0001	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C7	.005	600	PC-6	P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C8	500		MC-5	GP500M	5W5T5	GP2K-500	1FM-35	AF Amp. Plate Bypass
C9	.005	600	PC-6	P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C10	.01	400	PC-7	P488-01	PTE4S1	821-01	TM-11	Output Plate Bypass
C11	.05	400	PC-5	P488-05	PTE4S5		TM-15	Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	VC-9	QI3-137 *	15/16-63-Z	Volume control
B	Switch		Not Req.	76-1 *	SPST SW #	

* Attach to R1A per instructions.
\# Attached at factory.

RESISTORS

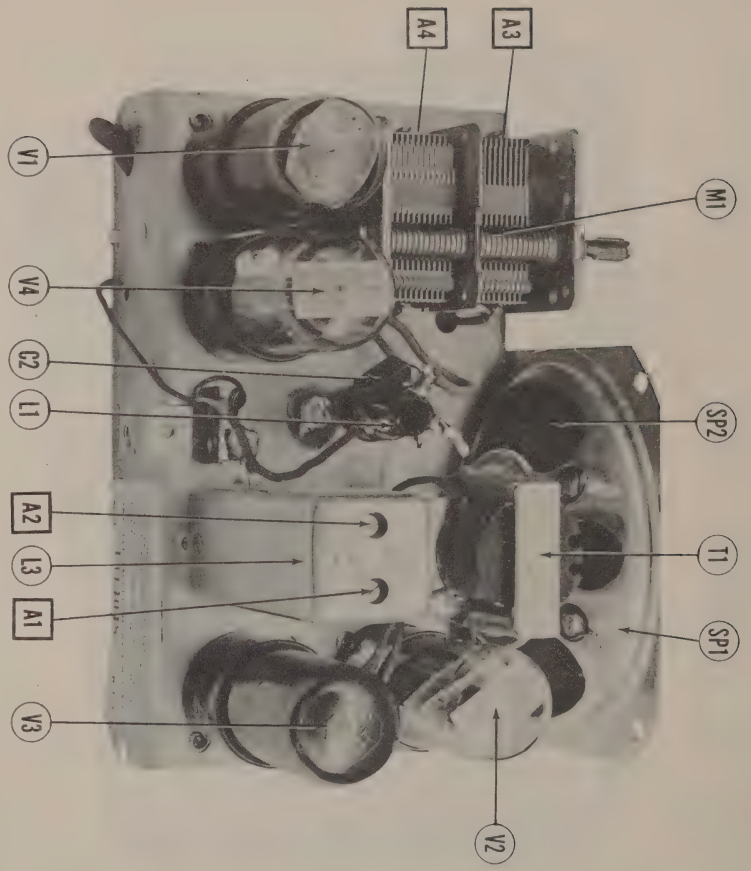
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	IR-9	BTS-22K	Osc. Grid
R3	3.3 Meg.	½	IR-23	BTS-3.3 Meg.	AVC Network
R4	10 Meg.	½	IR-3	BTS-10 Meg.	AF Grid
R5	470KΩ	½	IR-11	BTS-470K	AF Plate
R6	470KΩ	½	IR-11	BTS-470K	Output Grid
R7	150Ω	2	IR-14	BW-½-150	Output Cathode
R8	2200Ω	1	IR-25	BW-1-2200	Filter
R9	33Ω	½	IR-17		Surge Limiter
R10	47Ω	1	IR-41	BW-1-47	Filament Dropping
R11	33Ω	½	IR-17		Parasitic Supp. See Note
R12	220KΩ	½	IR-20	BTS-220K	Isolation

Note. Not used in all models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T1	1.8KΩ	3.4Ω	150Ω	.5Ω	Part of SPK-10	A-3332 †	A-3025 †		† Bend mounting tabs down and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRAV-LER PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113 †		
SP1	PM	3.4Ω	SPK-10	MOD. P4-X	4A07 †	† Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

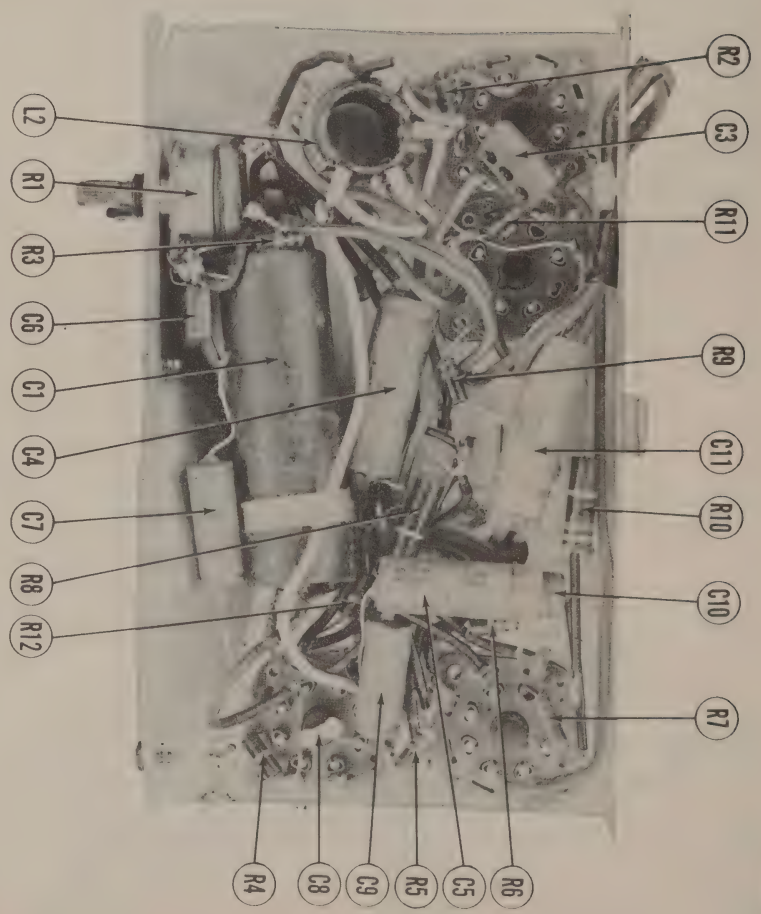
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.
L1	Ant. Coil	23.1Ω	2Ω	LA-3	14-1056
L2	Osc. Coil	.8Ω	6.1Ω	LO-14	14-1073
L3	IF Trans.	16Ω	16Ω	LI-8	16-6660

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M1	2 Gang Var. Cap.	GC-7X	(18-452MMF, 33-197MMF)

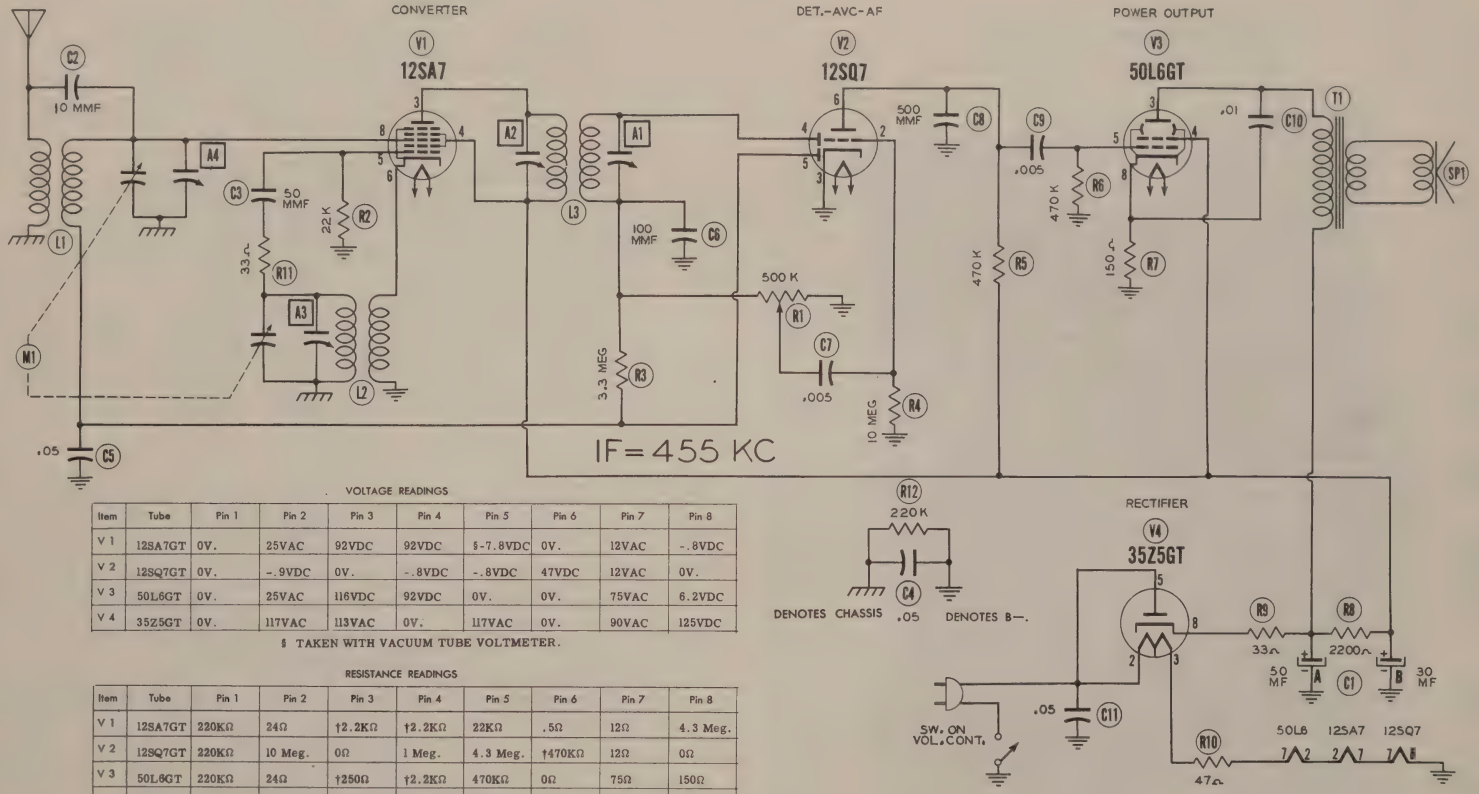
CHASSIS—BOTTOM VIEW



SET 90 FOLDER 12

TRAV-LER MODEL 5056-A

TRAV-LER MODEL 5056-A



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7GT	0V.	25VAC	92VDC	92VDC	§-7.8VDC	0V.	12VAC	-.8VDC
V 2	12SQ7GT	0V.	-.9VDC	0V.	-.8VDC	-.8VDC	47VDC	12VAC	0V.
V 3	50L6GT	0V.	25VAC	116VDC	92VDC	0V.	0V.	75VAC	6.2VDC
V 4	35Z5GT	0V.	117VAC	113VAC	0V.	117VAC	0V.	90VAC	125VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7GT	220KΩ	24Ω	†2.2KΩ	†2.2KΩ	22KΩ	.5Ω	12Ω	4.3 Meg.
V 2	12SQ7GT	220KΩ	10 Meg.	0Ω	1 Meg.	4.3 Meg.	†470KΩ	12Ω	0Ω
V 3	50L6GT	220KΩ	24Ω	†250Ω	†2.2KΩ	470KΩ	0Ω	75Ω	150Ω
V 4	35Z5GT	Inf.	150Ω	145Ω	220KΩ	150Ω	Inf.	115Ω	90KΩ

† MEASURED FROM PIN 8 OF V4.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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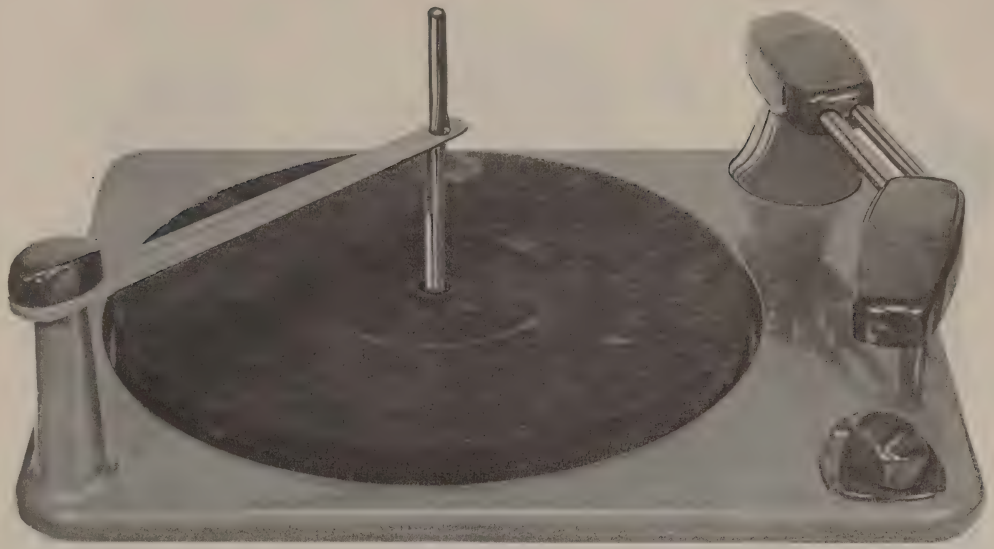
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

GENERAL INFORMATION

The V-M 400 Late is a single-post changer designed to play automatically up to ten 12-inch records, twelve 10-inch records, or ten records intermixed. The changer will shut off automatically on the completion of the last record. The unit is designed to be jam-proof. The pickup arm may be held and the control knob may be turned to any position during cycle.

Manufactured by V-M CORPORATION, BENTON HARBOR, MICHIGAN

THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

Ameco	37 E. 18th Street, New York, New York
Crosley Corporation	1329 Arlington Street, Cincinnati, Ohio
Electronic Laboratories	122 W. New York Street, Indianapolis, Indiana
Howard Radio Company	1731 Belmont Avenue, Chicago, Illinois
Majestic Radio & Television Corp.	5th and Rockwell, St. Charles, Illinois
Motor Parts Company	1229 N. Broad Street, Philadelphia, Pennsylvania
Stewart-Warner Corporation	1826 Diversey Parkway, Chicago, Illinois
Templetone Radio Mfg. Company	100 Garfield Street, New London, Connecticut
Sears, Roebuck & Co.	925 S. Homan Street, Chicago, Illinois

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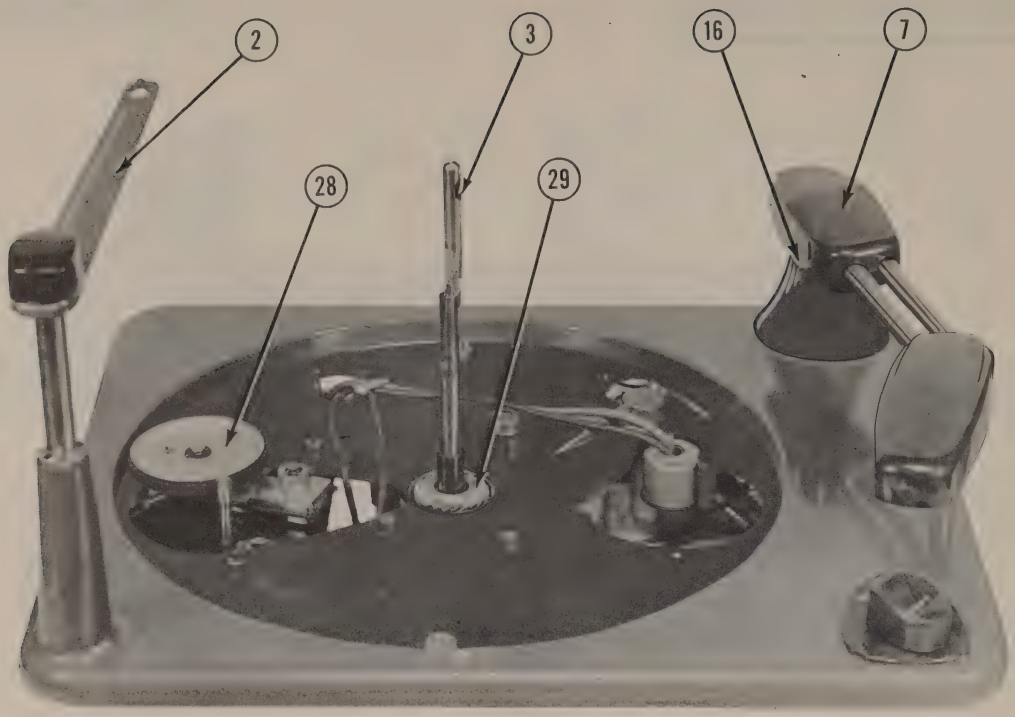


TOP VIEW—LESS TURNTABLE

MANUAL OPERATION

Odd-sized, warped records and home recordings should be played manually:

1. Raise the record support (2) clear of the spindle and swing the record support in either direction until the pin in the support shaft drops into the locating groove.

2. Place a record on the turntable.

(a) For the record to pass the step on the spindle, tilt the record toward the back of the pickup arm and work the record carefully over the step.

3. Place the record support (2) over the spindle, letting it rest on the step of the spindle.

4. Turn the control knob (36) to the "On" position.

5. Press down on the trip lever (16) which is located near the back of the pickup arm (7).

6. Place the pickup arm on the edge of the record.

7. Upon completion of the record, the pickup arm will return to a rest position on the rest post; that is, if the record has an eccentric cut-off groove. If the record does not have an eccentric groove, turn the control knob to "Reject" and release. The arm will then return to the pickup arm rest and shut off automatically.

AUTOMATIC OPERATION

1. Pull straight up on the record support knob (1) and swing the record support in either direction until the pin in the shaft drops into the locating groove.

2. Place as many as ten 12-inch, twelve 10-inch, or ten records intermixed on the offset shoulder of the spindle. Steady the records with one hand and replace the record support over the spindle. Press down gently on the record support knob (1) until the records are parallel with the turntable.

3. Turn the control knob (36) to the "Reject" position and release. The changer will now play the entire stack of records. On completion of the last record, the pickup arm will be returned to a rest position on the arm rest and will automatically shut off.

4. To reject a record at any time while it is playing, turn the control knob to "Reject" and release.

REPEATING A RECORD

1. Pull straight up on the record support knob and swing the record support in either direction until the pin in the shaft drops into the locating groove.

2. Remove any records remaining above the offset shoulder of the spindle. Do not replace the record support over the spindle. The changer will now repeat the top record on the turntable until the control knob is turned to the "Off" position.

CHANGE CYCLE

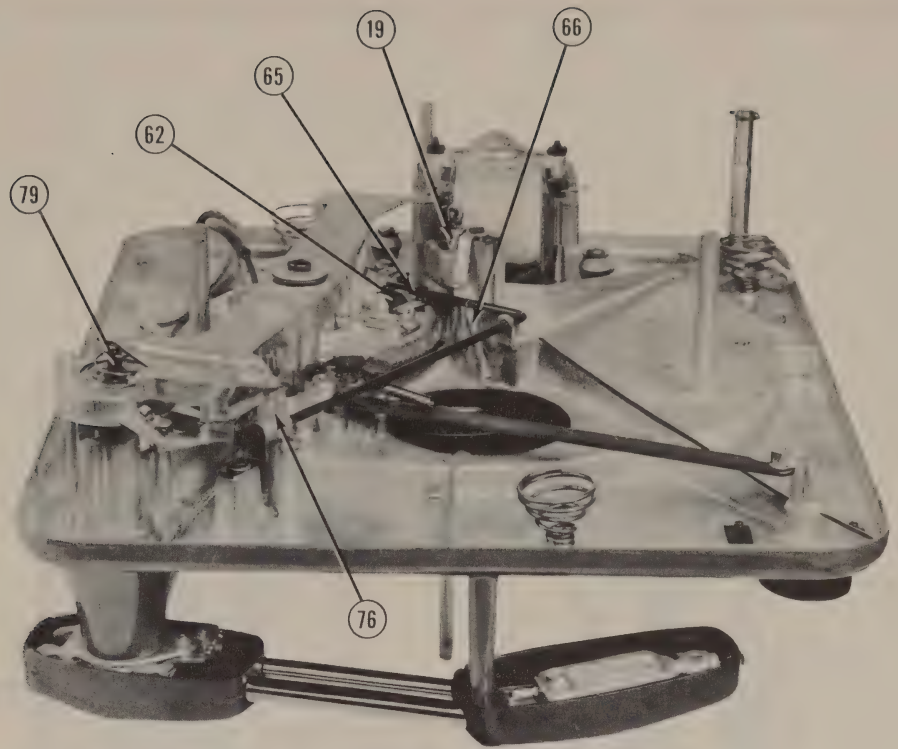
When the control knob (36) is turned to the "On" position, it turns the control crank (45), and, in turn, moves the control link (47) and the control lever (48). Therefore, point (48A) of the control lever engages the switch arm of the switch assembly (51), turning the motor on and starting the turntable to rotate.

By turning the control knob to "Reject," point (48B) of the control lever is pivoted against the pin of the ratchet (76) moving it. The trip rod (65), which ordinarily rests against the cam pawl (62) to prevent the cam pawl from being engaged with the pinion gear (29), is now turned away from the cam pawl through the action of the ratchet (76). The cam pawl is now free to engage the pinion gear, thus turning the main cam (52) starting the change cycle.

The change cycle may also be started by the action of the pickup arm in eccentric groove of the record. As the pickup arm moves across the record, the ratchet pawl (70) slides along the serrated portion of the ratchet (76). At the end of the record, the oscillating action of the pickup arm in the eccentric groove causes the pawl (70) on the ratchet arm (69) to straighten, pushing against the ratchet. This pivots the ratchet and trip rod (65), which, as a result, releases the cam pawl (62) and allows it to engage with the pinion gear (29), thus turning the main gear (52) starting the change cycle.

As the main cam turns, the lift arm (82) is actuated by the roller (86) of the lift arm riding in the heart-shaped groove on the bottom of the gear. One end of the lift arm controls the movement of the pickup, while the other end actuates the spindle assembly (3).

As the lift arm moves, the lift rod (79) rides up the cam surface (82B) of the lift arm (82), raising the pickup arm off the



BOTTOM—SIDE VIEW

record. As soon as the pickup arm is fully raised, the cam surface (82C) contacts the boss extending down from the ratchet arm (69) swinging the pickup arm out to clear the records. As the pickup arm is swinging out, a projection on the set-down locator (43) snaps into a mating indentation in the ratchet arm (69) caused by the pressure of the lift rod spring (78) against the ratchet arm. When this occurs, the setdown locator turns with the ratchet arm. Inside the ratchet arm the safety spring (68) holds a casting on the bottom of the pickup arm locator assembly (46) against a stop surface inside the ratchet arm so that the two assemblies move together unless the pickup arm is held during the cycle. In this case, the safety spring allows the ratchet arm to move even though the pickup arm is held, thus preventing injury to the mechanism.

The pickup arm is moved out until a stop extending down from the hinge body (14) strikes a stop in the base plate. The pickup arm is now clear of the records so that they are free to drop to the turntable. After the hinge body strikes the stop, preventing the pickup arm and hinge body from moving farther, the lift arm (82) continues to turn the ratchet arm (69) a little farther around. By this movement, the ratchet arm turns the locator (43) which, in turn, turns the pickup arm locator (46), the hinge bearing (33), which is fastened to the pickup arm locator by screw (32), and the adjusting ring (11), which is fastened to the hinge bearing by the two set screws (8). This causes a gap between the end of one leg of the catch (13) and the stepped catch surface extending from the adjusting ring. This allows the catch spring (13A) to pull the leg on the catch (13) around until it hits the stop extending out at right angles to the outer step in the leg on the adjusting ring (11). In this position, the pickup arm will set down for 10-inch position. When a 12-inch record is dropped, the record hits the trip lever (16), which, in turn, pivots the hinge cam (15) against the catch (13) moving it away from the outer step of the adjusting ring. The catch is held in this position by the step in the hinge cam which rests on the surface of the catch to prevent the catch from returning to its original position. The pickup arm is now set for 12-inch setdown by the tension of the ring spring (10) which pulls against the hinge body (14).

At approximately the same time the cam surface (82C) contacts the boss of the ratchet arm, cam surface (82A) contacts the spindle roller (20). The roller now rides up the cam, actuating the spindle assembly (3), causing the record pusher (5) to move straight up, so as to enter the center hole of the record, and then be pivoted forward, thus dropping a record to the turntable.

The guide (4), which is held down by the spindle guide spring inside the spindle, prevents more than one record at a time from being ejected. When records are removed from the turntable, the guide slides straight up allowing free movement up the spindle.

The heart-shaped groove in the bottom of the cam now reverses the movement of the lift arm (82), returning the spindle assembly to its original position and swinging the pickup arm in, positioning it for set down and lowering it to the record. When the lift rod (79) is completely lowered, the tension of the lift rod spring (78) against the ratchet arm (69) is released. The ratchet arm will now drop down forming a gap between the indentation in the ratchet arm (69) and the projection on the locator (43). This allows the pickup arm to have free movement on the record.

The clutch pawl (62) of the main cam (52) now moves against the end of the trip rod (65) so as not to engage with the pinion gear (29). The open section of the main cam is held, in respect to the turntable hub, by the engagement of the cam locator (53) with the two studs on the side of the main cam; thus, the change cycle is completed.

After the last record has been played, the record support (2), which is flush with the offset shoulder on the spindle (3), engages the pusher (5) and keeps it from completing its full travel. This prevents the spindle pusher housing (19) from completely retracting as the roller (20) rides up the lift arm cam surface (82A). When the roller (20) reaches the top of the cam surface (82A), the cutoff rod (81) engages the shoulder of the spindle pusher housing (19). This causes the cutoff rod (81) to rotate 90°. As the lift arm (82) reverses its motion, the opposite end of the cutoff rod (81) engages the stud on the control lever (48), thus actuating the switch (51) and the knob (36) to the "off" position, through the control linkage (47). The pickup arm (7) returns to the rest as described in the preceding paragraphs. This completes the shutoff cycle of operation.

ADJUSTMENTS

Needle Setdown

The setdown position of the needle is adjusted by means of the two adjusting screws (8). If the needle is setting down too far out on the record, loosen the back screw (8) about ¼ turn

A PHOTOFACT "EXPLODED" VIEW

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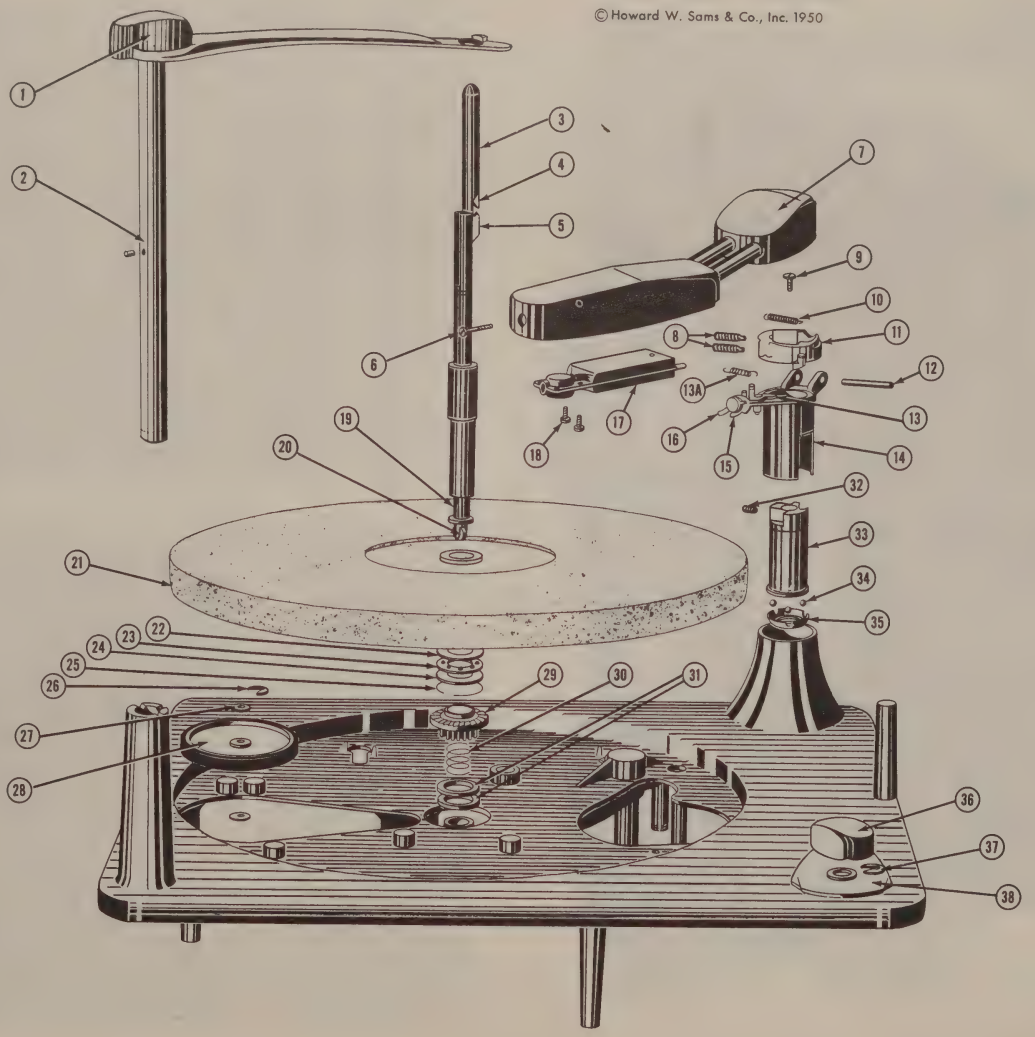

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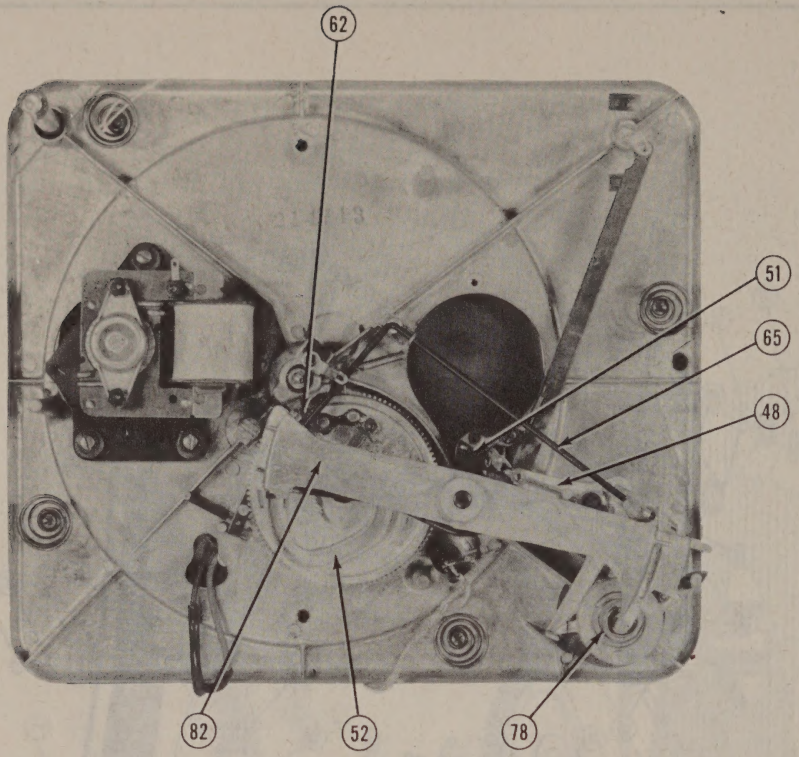


BOTTOM VIEW

and tighten the front screw (8) to lock the adjustment in place. If the needle is setting down too far in on the record, loosen the front screw and tighten the back screw. If the hinge bearing (33) has been removed or the hinge bearing set screw (32) has been loosened, the relationship between the hinge bearing and the pickup arm locator assembly (46) must be reset. The procedure is as follows: Loosen the set screw (32) sufficiently to allow the hinge bearing to slide on the pickup arm locator assembly shaft. The set screw may be adjusted with an Allen wrench through the hole in the adjusting ring (11) located between the two adjusting screws (8). Place a 1/32" shim between the setdown locator (43) and the ratchet arm (69).

Turn the control knob to the "Off" position. Place the pickup arm on the rest. In this position, the arm extending from the setdown locator should be engaged by the turned-up leg on the control lever (48). Take up all play between the parts by pressing up on the bottom of the ratchet arm and down on the top of the hinge bearing. Tighten the hinge body set screw (32) and remove the shim.

Pickup Arm Height

The height of the pickup arm is adjusted by screw (9) located on top of the lift rod (79). The height should be adjusted so that the underneath side of the pickup arm clears the rest post 1/8" to 3/16".

TROUBLES

Record Does Not Drop When Changer Cycles

1. Spindle pusher shaft broken:
If the pusher shaft (inside the spindle) is broken, the roller assembly (20) will drop out of the spindle. Loosen the set screw that holds the spindle in the base plate, and remove the spindle assembly (3). Replace with a new spindle unit.

2. Pusher in spindle not moving far enough forward to eject a record.
The pusher (5) should move up inside the spindle body, then move forward until it has reached a point flush with, or a maximum of, .010" beyond the spindle body. To assure that the pusher is all the way forward, the spindle roller (20) should be raised high enough by the lift arm (82) at the top of the cam face to slightly compress the roller spring inside the pusher housing (19). If the roller spring is compressed, and the pusher (5) does not move far enough forward to eject a record, the spindle should be replaced. If a record is not pushed completely off the ledge, it may hang up on the spindle momentarily, then drop on the pickup arm when it moves in over the turntable.

3. Lift arm screw loose:
Check screw (85) to determine if it is turned all the way in.

4. Pusher raises outside spindle body.
When the changer cycles, the pusher (5) should first rise up inside the spindle body, then move forward inside the center hole in the record. If the pusher rises outside the spindle body, it will raise the record instead of pushing it off the spindle ledge. Remove the spindle and replace with a complete new spindle assembly.

5. Lift arm roller broken off:
If the lift arm roller (86) is broken off, the lift arm (82) will not turn when the cam revolves.

Two Records Drop at Once

1. Hole in record too large.

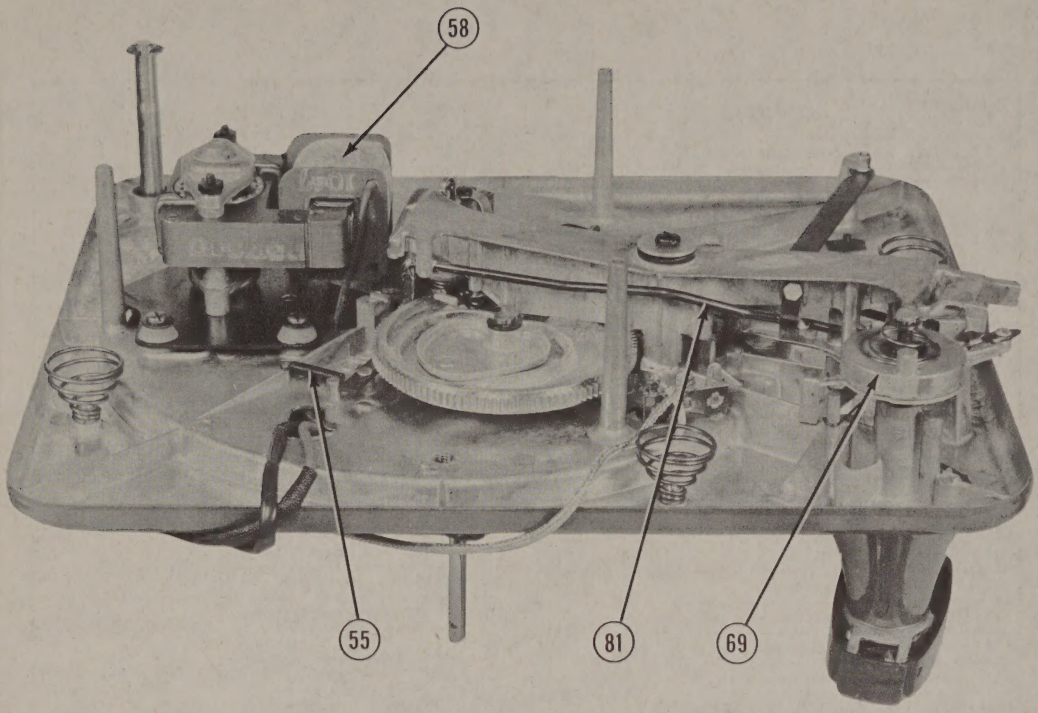
2. Spindle slide (4) not fully down.
(a) Check the slide (4) to see if it is bent or binds at any point.

3. Record support (2) binding on spindle.
(a) Check spindle to determine if it is straight.
(b) Check record support to see if it is square with the spindle.
(c) Check for bind of the record support shaft (2) in the shaft post on the base plate.

Changer Trips Before Needle Reaches End of Record

1. Hole in record too large:
If the hole in the record is too large, the groove may turn eccentric with the spindle and cause premature tripping.

2. Insufficient tension on trip spring:
The trip spring (66) should have enough tension to pull the trip rod back to a fully engaged position if an eccentric record is being played.



BACK VIEW—BOTTOM

3. Binding in trip rod bearings:
With the trip released, check the trip rod for play in the bearings. It should be free to turn without binding.

Changer Does Not Cycle on Completion of Record

1. Trip rod (65) binding in bearings (67) and (72).
2. Pawl (70) binding.
3. Cam pawl (62) binding.
4. Spring (61) loose.
5. Rough surface on end of trip rod.

Needle Does Not Track Across the Record

1. The setdown locator binds on the ratchet arm:
(a) There should be a 1/32" gap between the ratchet arm (69) and the locator (43) when the mechanism is not in cycle. See "Needle Setdown Adjustment."
2. Hinge bearing binds:
(a) Lubricate with light oil.

Changer Continues to Cycle

1. Insufficient tension of spring (66).
2. Trip rod binding.
3. Reject spring (49) loose.
4. Check control crank (45), control link (47), and control lever (48) for binding.

Changer Shuts Off Prematurely

1. Roller spring inside the housing (19) weak, and, therefore, does not push the pusher assembly high enough to clear the end of the cutoff lever.
2. Cutoff rod (81) not being reset.

Changer Does Not Shut Off After Last Record Has Been Played

1. Record support (2) binding and does not drop to spindle ledge.
2. Cutoff rod (81) not engaging the ring on the housing (19):
(a) Check the screw that holds the pickup arm to the base plate to see if it is turned all the way in.

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows:
Apply Lubriplate to:

1. Hinge bearing (33).
2. Ratchet arm (69) and setdown locator plate (43).
3. Cam face on lift arm (82), lift arm bearing, and lift arm cutoff rod bearings.
4. Between lever spring (80) and cutoff rod (81).
5. Heart-shaped cam track on cam (52) and cam bearing.
6. Spindle between roller plunger and housing, and between the housing and the spindle body.
7. Turntable ball bearing (23).

Apply small quantity of light oil to:

1. Pickup arm locator assembly (46) and ball bearings (34) in pickup arm post.
2. Ratchet pawl bearing (70).
3. Trip rod bearings (67) and (72).
4. Control lever bearing (48).
5. Turntable and spindle bearing.
6. Pinion bearing (29).

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	1711	Knob (part of item 2)
2	1712	Record support assembly (including item 1)
3	1503	Spindle assembly (including items 4, 5, 19, and 20)
4	1556	Record guide (part of item 3)
5	1552	Record pusher (part of item 3)
6	1572	Needle screw
7	1702	Pickup arm
8	1580	Adjusting screw
9	1616-B	Height adjusting screw
10	1574	Ring spring
11	1840	Adjusting ring and screw
12	941-B	Hinge pin
13	1578	Catch
14	1576	Hinge body
15	1581	Hinge cam
16	1582	Size change trip lever
17	649-E	Crystal cartridge
18	713	Screw No. 4 x ¼ type "Z"
19	1837	Spindle pusher assembly (part of item 3)
20	1536	Spindle roller (part of item 3)
21	1517	Turntable
22	1543	Turntable washer
23	1544	Turntable bearing
24	1543	Turntable washer
25	1549	Retainer spring
26		"C" washer
27		Fiber washer
28	1514	Sampsel drive wheel assembly
29	1624	Pinion gear
30	1735	Pinion spring
31	1546	Turntable washer
32	1610	Screw
33	1609	Hinge bearing
34	724	Ball bearings (3 balls)
35	1614	Bearing spacer
36	1711	Control knob
37	1719	"C" washer
38	963-2	Escutcheon
39	1631	Return spring
40	1654	Fiber washer
41	1639	Fiber washer
42	1652	"C" washer
43	1630	Setdown locator
44	1542	"C" washer
45	1726	Control crank
46	1522	Pickup arm locator assembly
47	1725	Control link
48	1635	Control lever
49	1721	Reject spring
50	709-A	Screw No. 6 x ¼" type "Z"
51	1519	Switch assembly
52	1607	Gear cam
	1510	Cam assembly (including 52, 61, and 62)
53	1919	Cam locator
54	1547	Drive pin
55	419	Locator spring
56	1650	"C" washer
57	1604	Grommet
58	1526-B	Motor assembly 110 volts, 60 cycles
59	1600	Grommet spacer
60	1717	No. 6 x ⅜" type "Z"
61	1697	Spring
62	1918	Cam pawl
	1547	Drive pin
63	1653	Fiber washer
64	1651	"C" washer
65	1585	Trip rod (including item 76)
66	133	Trip spring
67	1591	Trip rod bearing
68	1638	Safety spring
69	1605	Ratchet arm (including item 70)
70	1606	Ratchet pawl (part of item 69)
71	1697	Pawl spring
72	1729	Trip rod bearing
73	709-A	Screw No. 6 x ¼" type "Z"
74	1589	Fiber washer
75	1588	"C" washer
76	1590	Ratchet (part of item 65)
77	1650	"C" washer
78	1620	Lift rod spring
79	1630	Lift rod
80	1599	Lever spring
81	1595	Cutoff lever
82	1594	Lift arm
83	1636	Lift arm washer
	1637	Fiber washer 1/64" thick
	1922	Fiber washer 3/64" thick
84		Lockwasher
85	277	Screw No. 8-32 x ⅜"
86	1597	Roller